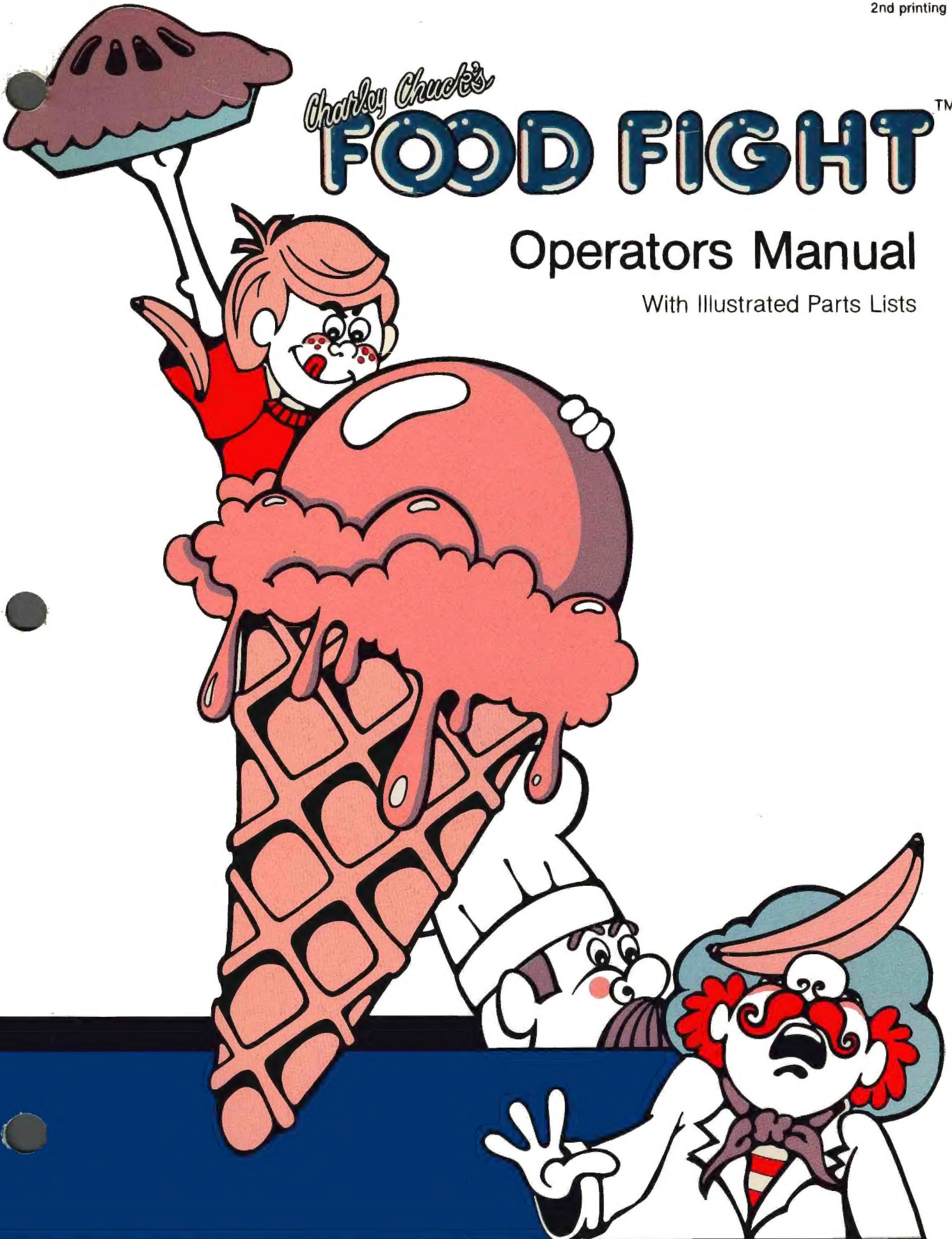


Charley Chuck's

FOOD FIGHT™

Operators Manual

With Illustrated Parts Lists





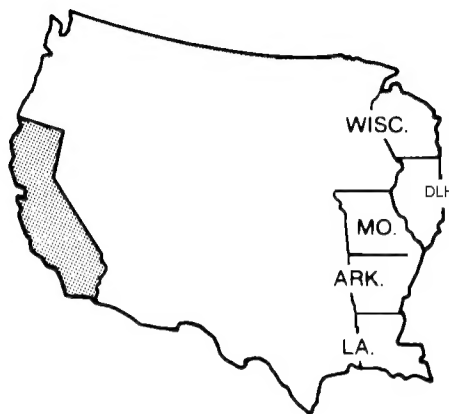
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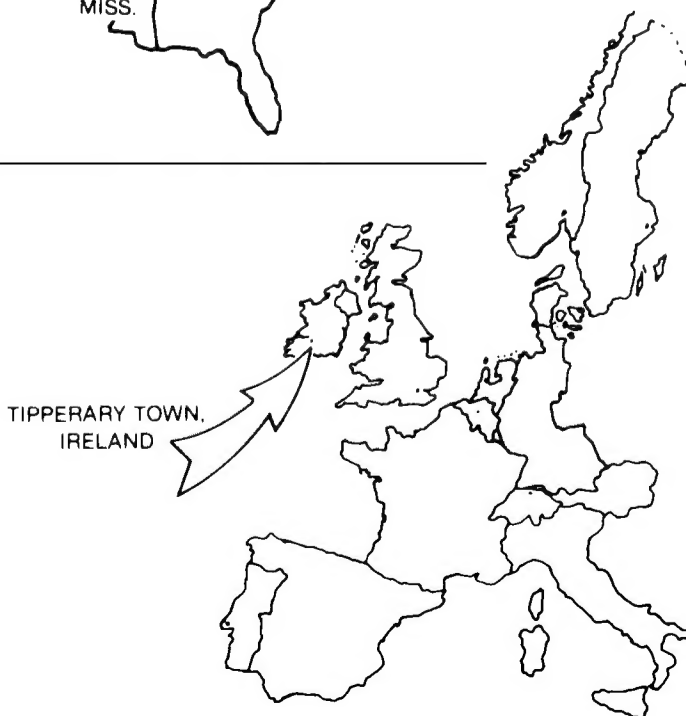


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Charley Chuck's

FOOD FIGHT



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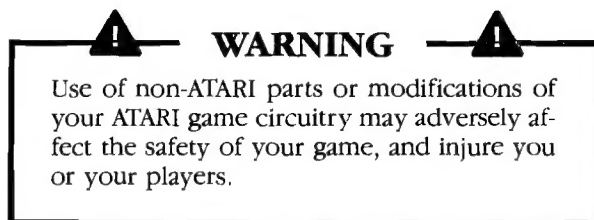
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- substitute non-ATARI parts in the game
- modify or alter any circuits in the game by using kits or parts *not* supplied by Atari.

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This equipment generates, uses, and can radiate radio frequency energy and if not installed and used in accordance with the instruction manual, may cause interference to radio communications. It has been tested and found to comply with the limits for a Class A computing device pursuant to Subpart J of Part 15 of Federal Communications Commission (FCC) Rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of this equipment in a residential area or modification to this equipment is likely to cause interference in which case the user, at his own expense, will be required to take whatever measures may be required to correct the interference. If you suspect interference from an ATARI® game at your location, check the following:

- All green ground wires in the game are properly connected as shown in the game wiring diagram.
- The power cord is properly plugged into a grounded three-wire outlet.
- The game printed-circuit board(s) (PCB) is properly installed within the Electromagnetic Interference (EMI) cage.
- The EMI Shield PCB is properly installed and connected in series with the game PCB harness.
- All filter capacitors required on the EMI Shield PCB are properly soldered in place.

If you are still unable to solve the interference problem, please contact ATARI Customer Service. See the inside front cover of this manual for service in your area.

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Safety Summary

The following safety precautions apply to all game operators and service personnel. Specific warnings and cautions will be found throughout this manual where they apply.

WARNINGS

Properly Ground the Game. Players may receive an electrical shock if this game is not properly grounded! To avoid electrical shock, do not plug in the game until it has been inspected and properly grounded. This game should only be plugged into a grounded 3-wire outlet. If you have only a 2-wire outlet, we recommend you hire a licensed electrician to install a grounded outlet.

Players may receive an electrical shock if the control panel, video display, EMI cage, fluorescent light assembly, and utility panel are not properly grounded! After servicing, check that the green ground wire or grounding clip for each assembly is firmly attached. Only then should you lock up the game.

AC Power Connection. Before connecting the game to the AC power source, verify that the proper voltage-selection plug is installed on the game's power supply.

Disconnect Power During Repairs. To avoid electrical shock, disconnect the game from the AC power source before removing or repairing any part of the game.

Discharge High Voltage from the Video Display. When removing or repairing the video display, extra precautions must be taken to avoid electrical shock. High voltages may exist within the display circuitry and cathode-ray tube (CRT) even after power has been disconnected. Do not touch internal parts of the display with your hands or with metal objects held in your hands! Always discharge the high voltage from the CRT before servicing this area of the game. To discharge the CRT: Attach one end of a large, well-insulated, 18-gauge jumper wire to ground. Momentarily touch the free end of the grounded jumper to the anode by sliding it under the anode cap. Wait two minutes and discharge the anode again.

Use Only ATARI Parts. To maintain the safety integrity of your ATARI game, use only ATARI authorized parts when repairing the game. Use of non-ATARI parts or modifications of the game circuitry may adversely affect the safety of your game, void the warranty, and injure you or your players.

Handle Fluorescent Tube and CRT With Care. If you drop a fluorescent tube or CRT and it breaks, it will implode! Shattered glass can fly six feet or more from the implosion.

Use the Proper Fuses. To avoid electrical shock, only use replacement fuses that are specified in the parts list for this game. Replacement fuses must match those replaced in fuse type, voltage rating, and current rating. In addition, the fuse cover must be in place during game operation.

CAUTION

Properly Attach All Connectors. Before turning on the game for the first time, make sure that all connectors are properly attached. Make sure that the connectors on each PCB are properly plugged in. Note that they are keyed to fit only one way. If they do not slip on easily, do not force them. A reversed connector may damage your game and void the warranty.

Set-Up Procedures



A. How to Use This Manual

This manual, written for game operators and service technicians, describes the Food Fight™ game. The manual contains information about both the Ireland- and US-built games. Whenever information is unique to the Ireland-built game, this symbol appears: ♣

Whenever information is unique to the US-built game, this symbol appears: ★

Chapter 1 contains game specifications, inspection procedures, voltage plug and fuse information, switch locations, and option information.

Chapter 2 contains self-test procedures.

Chapter 3 contains illustrated parts lists. Figures 3-1 and 3-2 illustrate the US-built and the Ireland-built game cabinet. Italicized type on these figures refer you to other places in the manual for information about specific cabinet parts.

Schematic diagrams of the game circuitry are included as a supplement to this manual.

Chapter 1

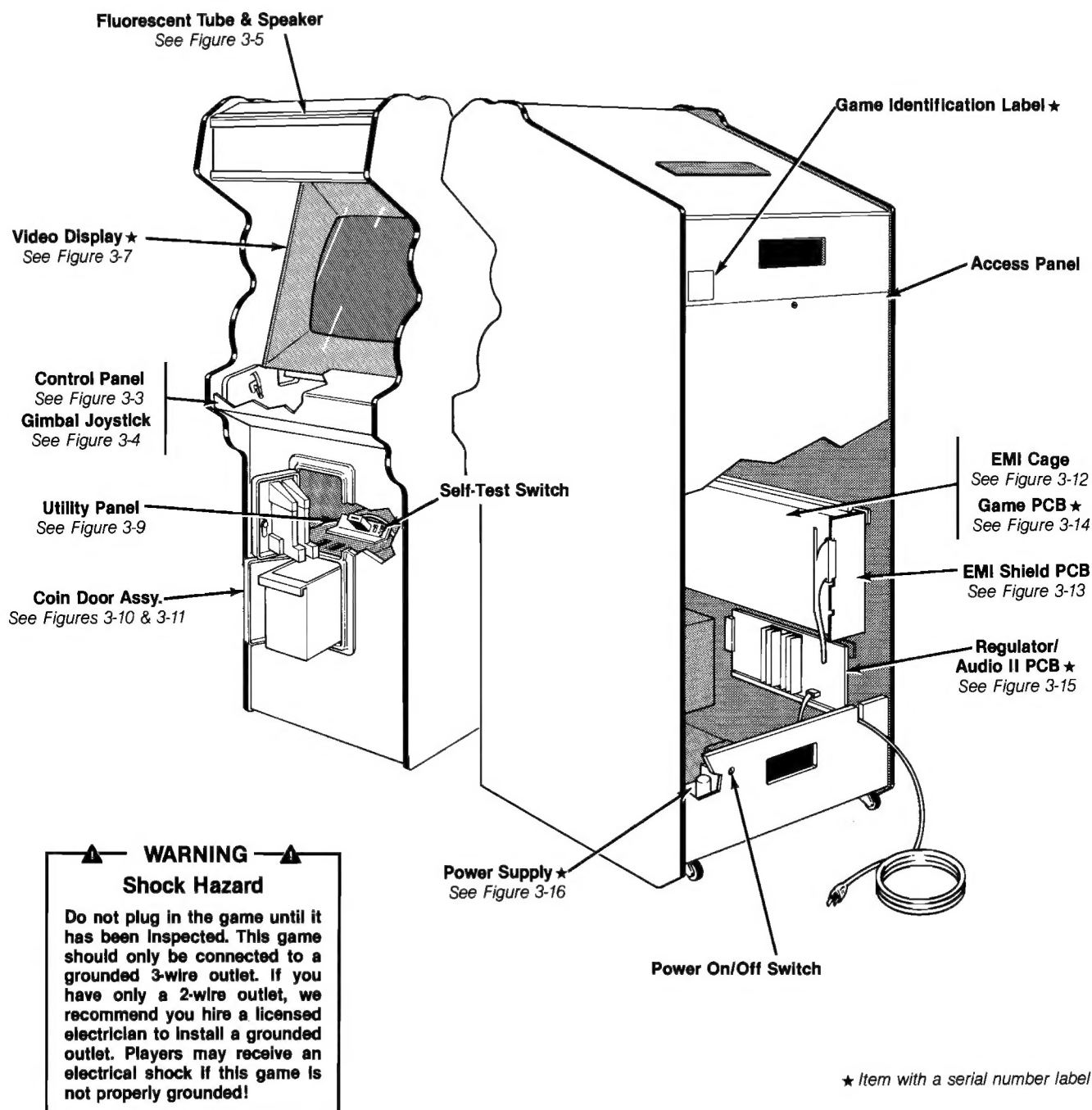


Figure 1-1 Game Overview—US-Built Game

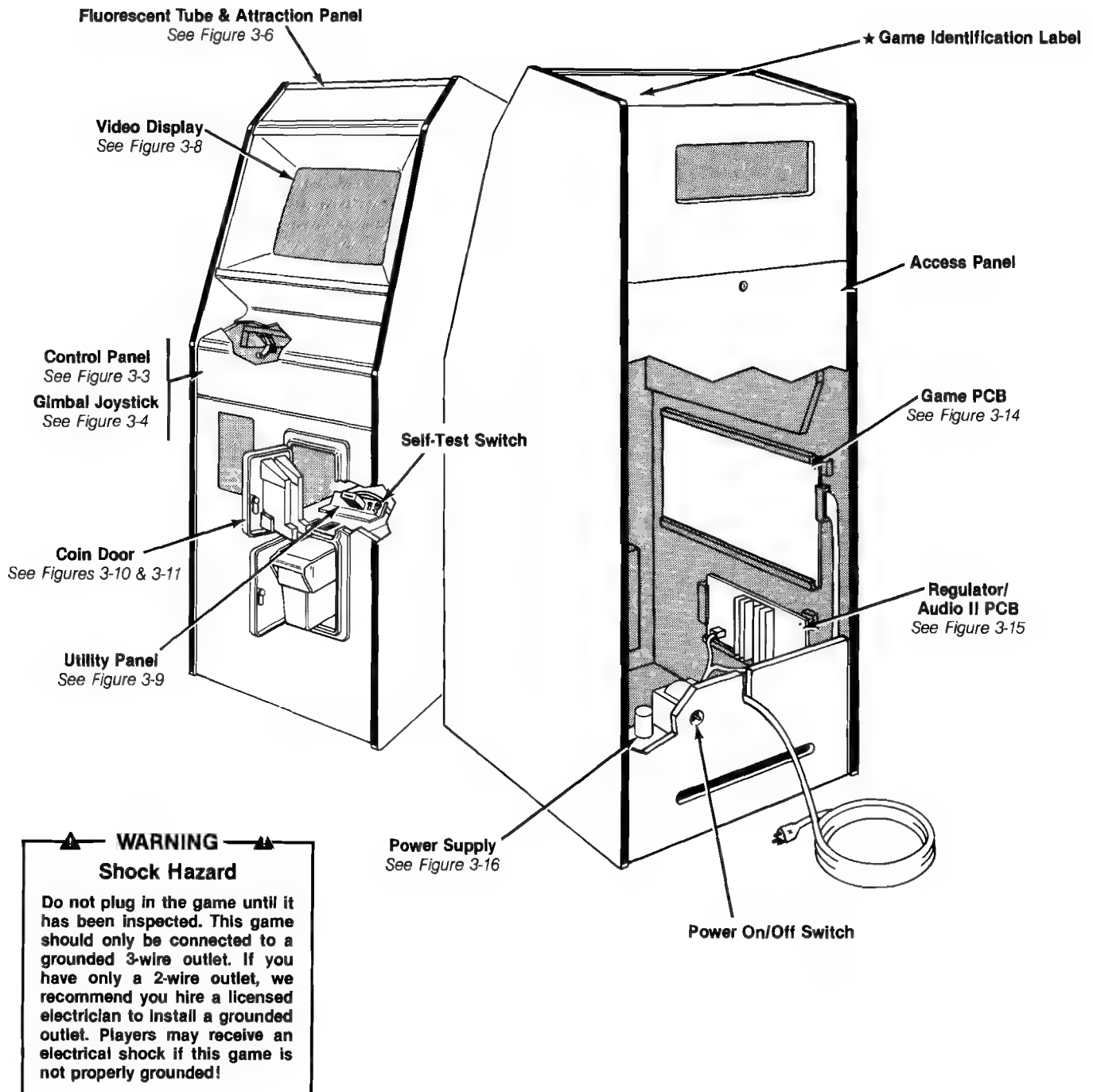


Figure 1-2 Game Overview—Ireland-Built Game

B. Game Overview

Food Fight hero, Charley Chuck, gets points by eating his ice cream cone before it melts. To do this, he must fight off Oscar, Angelo, Jacques, and Zorba, the four chefs who rise from holes and throw food at him. When Chuck eats the cone, the ice-cream flavor changes and the game difficulty increases.

All major parts of the US-built Food Fight game are illustrated in Figure 1-1. All major parts of the Ireland-built game are illustrated in Figure 1-2.

C. Installation Specifications

Table 1-1 describes the physical, electrical, and environmental specifications of the game.

Table 1-1 Installation Specifications

| | |
|------------------------------|------------------------------|
| Power Consumption | 200 W |
| Temperature | 0 to +38° C (+32 to +100° F) |
| Humidity | Not to exceed 95% relative |
| Line Voltage | 100 to 240 VAC |
| <i>US-Built Cabinet</i> | |
| Width | 62.5 cm (25.5 in.) |
| Depth | 86 cm (34 in.) |
| Height | 181.5 cm (72 in.) |
| <i>Ireland-Built Cabinet</i> | |
| Width | 60 cm (24 in.) |
| Depth | 68 cm (27 in.) |
| Height | 170 cm (67 in.) |

D. Inspecting the Game

Please inspect your game carefully to ensure that it was delivered to you in good condition.

! WARNING !

Shock Hazard

To avoid electrical shock, do not plug in the game until the procedures in Sections D and E have been completed!

Do not touch internal parts of the display with your hands or with metal objects held in your hands!

1. Examine the exterior of the game cabinet for dents, chips, or broken parts.
2. Remove the screws from the rear access panel. Unlock and open this panel and the coin door; inspect the interior of the game as follows:
 - a. Ensure that all plug-in connectors (on the game harnesses) are firmly plugged in. Replug any connectors found unplugged. Do not force connectors together. The connectors are keyed so they only fit in the proper orientation. *A reversed edge connector may damage a PCB and will void your warranty.*
 - b. Ensure that all plug-in integrated circuits on the PCB are firmly plugged into their sockets.
 - c. Remove the tie-wrap that secures the coiled power cord inside the cabinet. Inspect the power cord for any cuts or dents in the insulation. Repair or replace it as required. Place the square strain-relief plate in the wood slot at the bottom of the rear panel opening.
 - d. Inspect major subassemblies, such as the power supply, control panel, video display, and EMI cage. Make sure they are mounted securely and that the green ground wires are connected.



E. Voltage-Plug Selection and Fuses

The power supply in your game contains six fuses. When you replace a fuse, use the identical type fuse with the same electrical rating (see Figure 1-3).

This power supply operates on the line voltage of many countries. The power supply comes with either one, two, or three voltage-selection plugs. Plug voltages and wire

colors are 100 VAC (violet wire color), 120 VAC (yellow wire color), 220 VAC (blue wire color), and 240 VAC (brown wire color).

See Figure 1-3 for placement of the voltage-selection plug. Before plugging in your game, check your line voltage. Next, check the wire color on the voltage-selection plug. Make sure the voltage-selection plug is correct for the voltage of your location.

Now plug the game into a grounded 3-wire outlet.

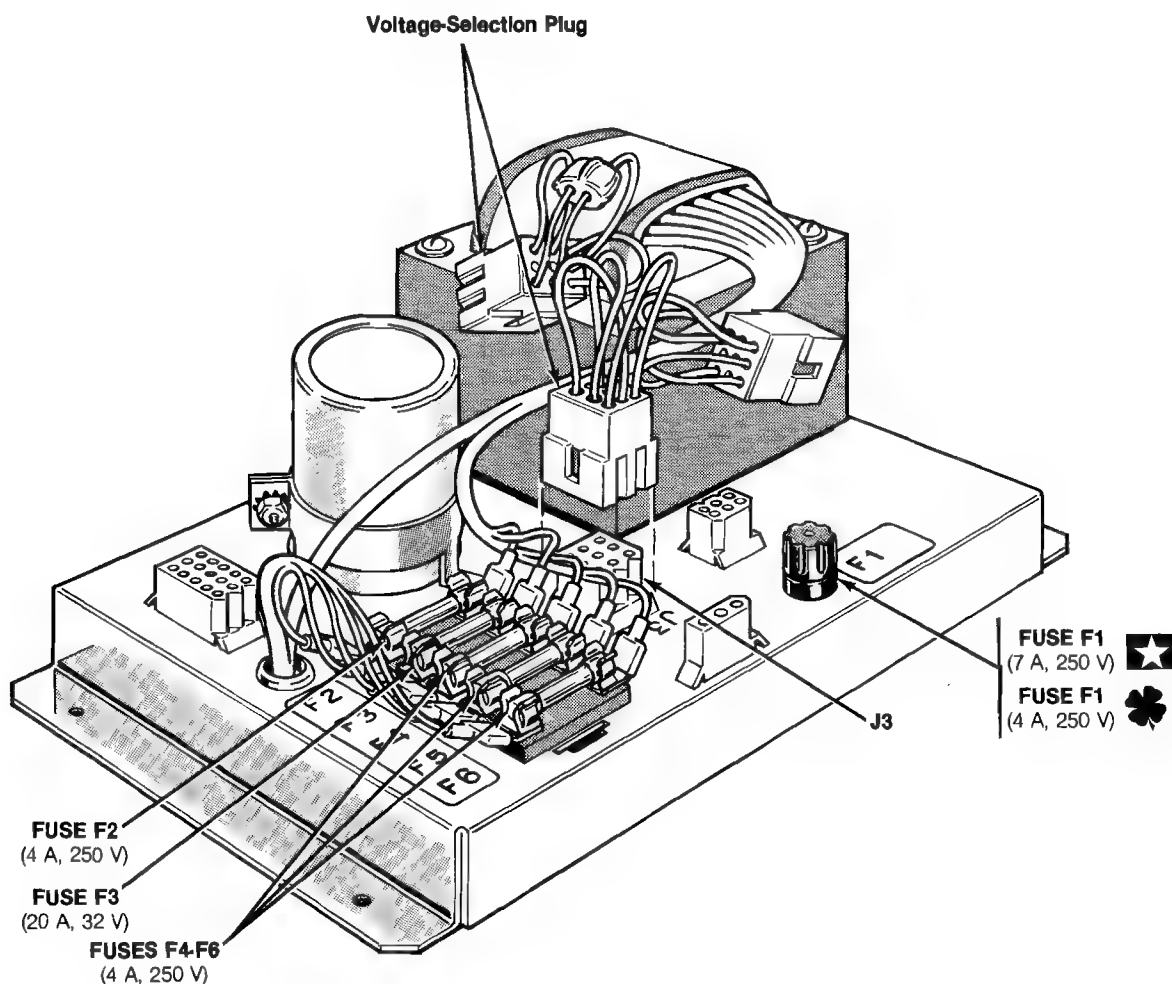


Figure 1-3 Voltage-Selection Plug and Fuses

F. Switch Locations

Power On/Off Switch

The power on/off switch is located on the back of the cabinet on the lower left side (see Figure 1-1 or 1-2).

Utility Panel Switches

The volume control, coin counter(s), self-test switch, and auxiliary coin switch are on the utility panel. The utility panel is located inside the upper coin door (see Figure 1-1 or 1-2). The volume control adjusts the level of sound produced by the game. The coin counter(s) records the number of coins entered into the game. The self-test switch initiates the self-test operating mode. The auxiliary coin switch is used to credit the game without activating a coin counter.

Option Switches

Option switches for game price selection are on the game printed-circuit board (PCB) at location SW1 (see Figure 1-4).

G. Selecting the Coin and Credit Options

Settings of the game coin and credit option switches are explained in Table 1-2. Options preset at the factory are shown by the ◀ symbols. However, you may change the settings according to your individual needs.

To verify other option selections, check the self-test display that appears when you turn on the game. Then, verify the option switch settings on the self-test display as described in Chapter 2, Checking Option Settings.

Table 1-2 describes the settings for the DIP switch at location SW1. This switch selects the game coin and credit options available for the left and right coin mechanisms.

The basic unit of measurement is a coin worth \$.25 or 1 DM. Thus, if you have a 2 DM/1 DM coin door with two coin counters, set switch 5 at location SW1 to on. Then, different denominations are counted on the two coin counters.

NOTE

Coin Option Interconnect Assembly J55A-P55A (A039655-01) permits a coin placed in either coin mechanism to register in the same coin counter. The cable connector is located between the coin door harness and the main harness (see the Coin Option Interconnect Wiring Diagram in SP-229). When it is used, left coin mechanism option switches at SW1 apply to both coin mechanisms.

If you want different options for the left and right coin mechanisms, remove Coin Option Interconnect Assembly J55A-P55A and connect J55 directly to P55.

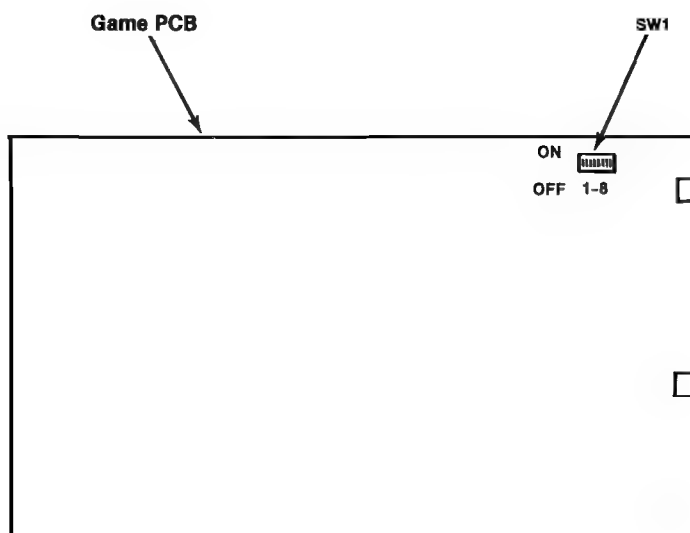


Figure 1-4 Option Switch Location

Table 1-2 Switch Settings for Coin and Credit Options

| Settings of 8-Toggle Switch on Game PCB (at SW1) | | | | | | | | Option |
|--|-----|-----|-----|-----|-----|-----|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | |
| Off | On | | | | | | | Free Play |
| On | On | | | | | | | 1 coin 2 credits |
| Off | Off | | | | | | | 1 coin 1 credit ◀ |
| On | Off | | | | | | | 2 coins 1 credit |
| | | | | | | | | Right Coin Mechanism |
| | | Off | Off | | | | | 1 coin 1 credit ◀ |
| | | On | Off | | | | | 1 coin 4 credits |
| | | Off | On | | | | | 1 coin 5 credits |
| | | On | On | | | | | 1 coin 6 credits |
| | | | | | | | | Left Coin Mechanism |
| | | | | Off | | | | 1 coin 1 credit ◀ |
| | | | | On | | | | 1 coin 2 credits |
| | | | | Off | Off | Off | | No bonus coins ◀ |
| | | | | On | Off | Off | | No bonus coins |
| | | | | Off | On | Off | | For every 4 coins, logic adds 1 more coin |
| | | | | On | On | Off | | For every 2 coins, logic adds 1 more coin |
| | | | | Off | Off | On | | For every 5 coins, logic adds 1 more coin |
| | | | | On | Off | On | | For every 3 coins, logic adds 1 more coin |
| | | | | Off | On | On | | No bonus coins |
| | | | | On | On | On | | No bonus coins |

◀ *Manufacturer's recommended settings*

Self-Test Procedure

This game will test itself and provide data to show that the game circuitry and controls are operating properly. Self-test data is presented visually on the player LEDs and the video display, and audibly through the speakers. No additional equipment is required.

We suggest that you perform a self-test when you first set up, each time you collect money, change the game options, or suspect game failure.



A. Self-Test Display

When the power switch is turned on, Food Fight enters the automatic selftest mode, which tests playfield RAM, program ROM, and non-volatile RAM (NVRAM). At the beginning of these tests, both the one-player and two-player LEDs are lit. (This is so that the success or failure of the tests can be indicated even if the messages cannot be displayed on the monitor.)

If the playfield RAM and program RAM are working, then the one-player LED turns off and the message RAM OK is displayed on the screen.

If the playfield RAM fails, the one-player LED flashes one through four times followed by a pause. The playfield RAM number displayed corresponds to the board location of the faulty chip as shown in Table 2-1.

Table 2-1 Playfield RAM Locations

| Playfield RAM Number | Board Location |
|----------------------|----------------|
| 1 | 3K |
| 2 | 3L |
| 3 | 3M |
| 4 | 3N |

If the program RAM fails, the one-player LED remains on, and the number of the bad chip is displayed. The program RAM number corresponds to the board location of the faulty chip as shown in Table 2-2.

Table 2-2 Program RAM Locations

| Program RAM Number | Board Location |
|--------------------|----------------|
| 0 | 8B |
| 1 | 8A |
| 2 | 9B |
| 3 | 9A |

After the RAM is checked, the checksums for program ROM are verified. If all ROMs check out correctly, then the two-player LED is turned off and the message ROM OK is displayed. If there are faulty chips, then the ROM number

of each faulty chip is displayed. The ROM number corresponds to the board location of the faulty chip as shown in Table 2-3.

Table 2-3 Program ROM Locations

| ROM Number | Board Location |
|------------|----------------|
| 0 | 9C |
| 1 | 8C |
| 2 | 9D |
| 3 | 8D |
| 4 | 9E |
| 5 | 8E |
| 6 | 9F |
| 7 | 8F |

After the program ROM is checked, the checksums for the NVRAM are verified. If all sections of the NVRAM check, then the message NVRAM OK is displayed. If any section of NVRAM fails, then the name of the faulty section is displayed and factory values from program ROM are used instead of the values from that section.

If playfield RAM, program RAM, and NVRAM check out correctly, Food Fight goes into the attract mode after five seconds. If NVRAM fails, the game will go into the attract mode when the THROW button has been pushed.

The five sections of NVRAM are as follows:

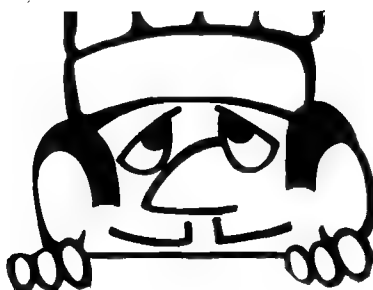
STATISTICS holds the values for the statistics display (see the description under Self-Test Menu). These values can be reset using the options menu.

TIME AND CREDITS holds the total time the machine has been on, and the total number of credits. These appear at the bottom of the statistics display and cannot be reset.

HIGH SCORES holds the player initials, scores, and levels achieved for the top three high-scoring games. These values appear at the top of the high-score table during the attract mode and can be reset using the options menu.

OPTIONS holds the current settings for the game options, which can be displayed and/or changed using the options menu.

JOYSTICK VALUES holds the maximum and minimum values for the analog joystick. See the description of Joystick Calibration under the TESTS option of the self-test menu.



B. Self-Test Menu

Food Fight has a menu-driven self-test mode which is entered by turning the self-test switch on. Turning the self-test switch off at any time during self-test mode causes the game to return to the attract mode.

Immediately after the self-test switch is turned on, the main self-test menu appears as shown in Figure 2-1. Three choices are available—TESTS, STATISTICS, and OPTIONS. Move the joystick up or down to change the current selection, which is displayed in red. Push the THROW button to select.

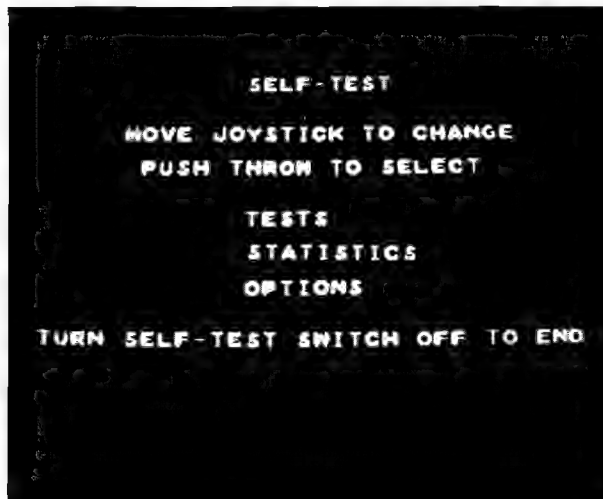


Figure 2-1 Main Self-Test Menu

NOTE

The two-player start button can be used to cycle through the selections in any of the self-test menus so the game can be tested even if the joystick is faulty.

Hardware Tests

Selecting TESTS causes the hardware test menu to appear as shown in Figure 2-2. There are five choices available—JOYSTICK CALIBRATION, SWITCH TEST, COLOR PATTERN, CONVERGENCE PATTERN, and SOUND TEST. Use the joystick and THROW button to select any option. Push the one-player start button to return to the main self-test menu.

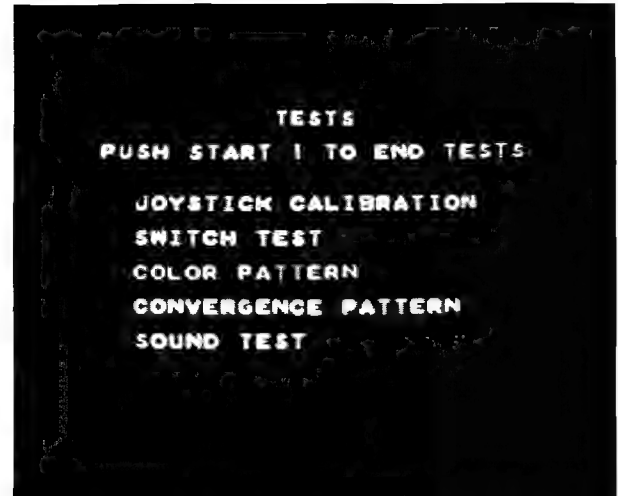
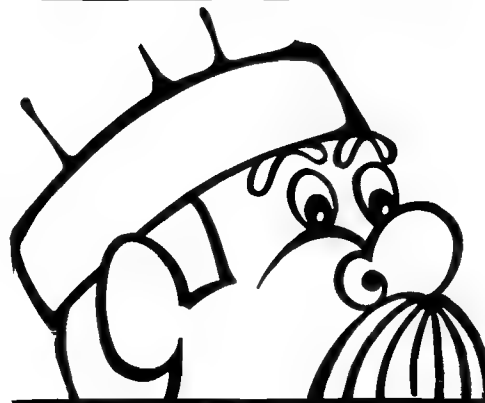


Figure 2-2 Hardware Tests Menu

JOYSTICK CALIBRATION resets the joystick minimum and maximum values, and should be used whenever the NVRAM or joystick is replaced. Hold the joystick steady for a full five seconds in each direction (left, right, up, down) to store new values. Push the one-player start button to return to the TESTS menu.

NOTE

Food Fight is equipped with a self-calibrating joystick, which checks its maximum and minimum values while the game is being played. Initial values are set at the factory and stored in NVRAM. When Food Fight is turned off, the NVRAM values are updated. Each time Food Fight is turned on, the current values are read out of NVRAM. If NVRAM fails (see the description under Automatic Self-Test), then the joystick is recalibrated as the game is being played. In this case, the control will be sluggish for the first game or two after the game is turned on.



SWITCH TEST displays the state of the control panel switches, the joystick values, the coin inputs, and the dual-inline-package (DIP) switches as shown in Figure 2-3. A one (1) indicates that the switch is on, and a zero (0) indicates it is off. All eight bits are displayed for each direction of the joystick. Push both the one- and two-player start buttons to end this test.

See Chapter 1, Selecting the Options, for information on the settings of the DIP switch located on the game PCB.

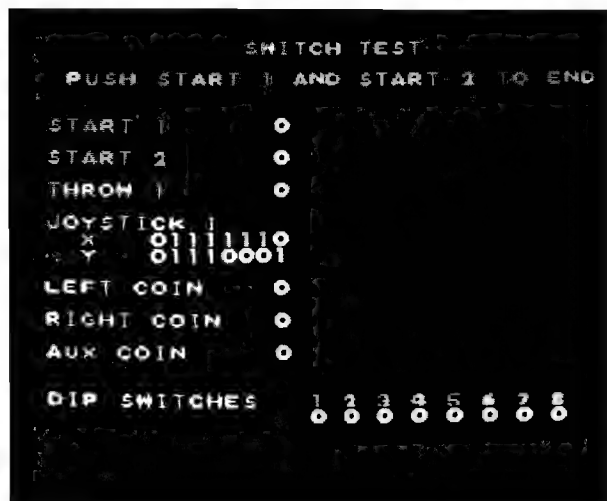


Figure 2-3 Switch Test Display

COLOR PATTERN displays all 256 Food Fight colors on a 16-by-16 grid of blocks in the center of the screen as shown in Figure 2-4. Use this display to check for color adjustment. Press the one-player start button to end this test. The colors are properly adjusted when the background is black and each colored block is distinguishable from those around it.

Food Fight has four blue levels, eight green levels, and eight red levels. These are overlayed to display the color grid as follows:

- Blue is displayed in four quadrants with level 0 (no blue) in the lower left quadrant, level 1 in the lower right quadrant, level 2 in the upper left quadrant, and level 3 (intense blue) in the upper right quadrant.
- Green is displayed in sixteen horizontal bars, two bars for each level, with level 0 (no green) bars at the center, level 7 (intense green) bars across the top and bottom, and intermediate levels in between.
- Red is displayed in sixteen vertical bars, with level 0 (no red) bars at the center, level 7 (intense red) bars at the right and left, and intermediate levels in between.

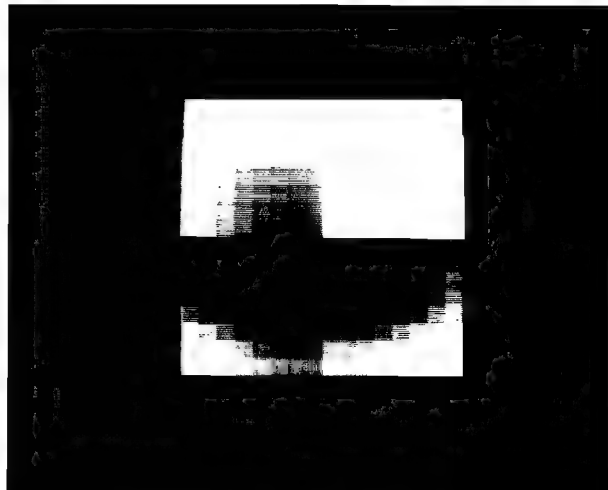


Figure 2-4 Color Pattern

CONVERGENCE PATTERN a white crosshatch pattern appears on the screen as shown in Figure 2-5. Use this pattern for convergence (see the raster-scan video display manual for a detailed procedure). Push the one-player start button to end this test.

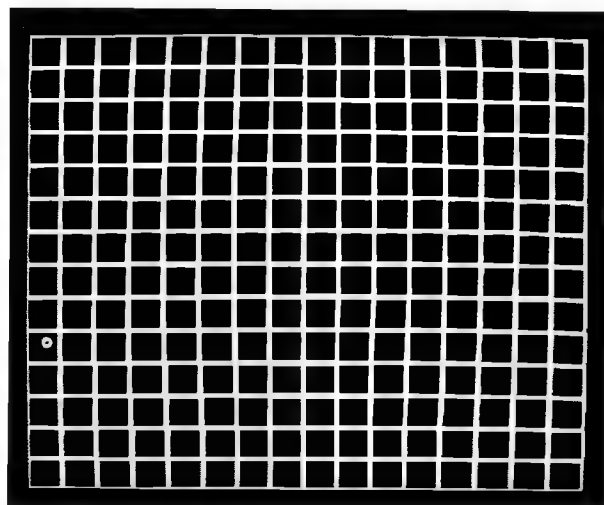


Figure 2-5 Convergence Pattern

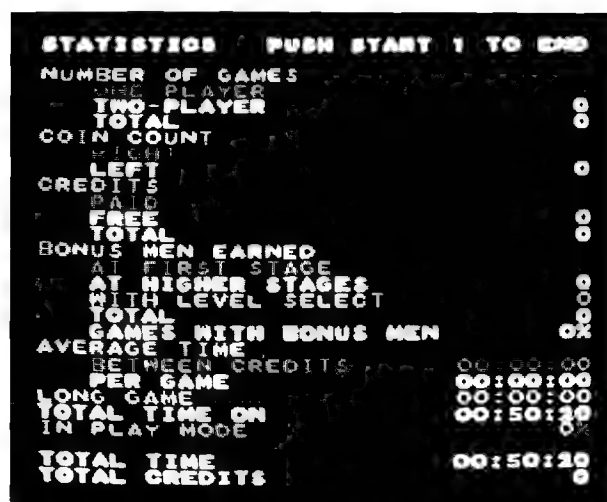
SOUND TEST tests the twelve channels of the three Custom Audio sound chips. As the channel number is displayed, the test sound is played. The test continues to cycle through the channels until the one-player start button is pressed to end the test. The channels correspond to the three Custom Audio chips as shown in Table 2-4.

Table 2-4 Sound Chip Locations

| Chip No. | Board Location | Channels |
|----------|----------------|--------------|
| 1 | 11K/L | 5, 6, 11, 12 |
| 2 | 11L/M | 1, 2, 7, 8 |
| 3 | 11N | 3, 4, 9, 10 |

Selecting the Statistics

This is the second selection on the main self-test menu. Selecting STATISTICS causes the game statistics display to appear as shown in Figure 2-6. Press the one-player start button to end this test.

**Figure 2-6 Statistics Display**

The totals on the display are those accumulated since the statistics were last reset. All statistics (except the last two) can be reset using the CLEAR VALUES, and STATISTICS selections of the options menu. All times on the display are shown as hours:minutes:seconds. The following statistics are displayed:

NUMBER OF GAMES reads the number of one-player games, the number of two-player games (increased by one for each two-player game), and the total number of games.

COIN COUNT reads the number of coins inserted through each of the right and left coin mechanisms.

CREDITS reads the number of paid credits, free credits (entered using the auxiliary coin button), and the total credits since the statistics were last reset.

BONUS MEN EARNED reads the number of bonus lives (extra Chucks) earned at the first stage at higher stages using level select, and the total. It also shows the percentage of games played in which at least one bonus life was earned.

AVERAGE TIME reads the average times between credits and games.

LONG GAME reads the longest time a player was able to play on one credit.

TOTAL TIME ON reads the total time the game has been turned on since the statistics were last reset.

IN PLAY MODE reads the percentage of time the game has been in play mode (as opposed to attract mode) since the statistics were last reset.

NOTE

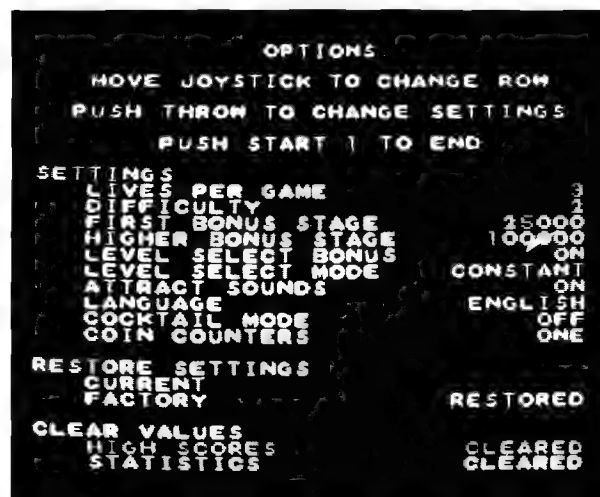
The last two statistics cannot be reset. They are accumulated from the date the game was manufactured, or since the NVRAM last failed or was replaced.

TOTAL TIME reads the total amount of time the game has been turned on.

TOTAL CREDITS reads the total number of credits.

C. Selecting the Options

Selecting OPTIONS, the third selection on the main self-test menu, causes the options display shown in Figure 2-7 to appear. Use this display to view or change game option settings, or to clear the high scores or statistics. Push the THROW button to cycle through values on the current row (indicated in red). Change the current row using the joystick or the two-player start button. Push the one-player start button to end this display and make the displayed option settings the current settings.

**Figure 2-7 Options Display**

To restore settings or to clear values, select the desired row and push the **THROW** button. **RESTORED** or **CLEARED** is then displayed. The options and settings available are listed in Table 2-5.

NOTE

Turning off the self-test switch during this display will cause the current option settings, the high scores, and statistics to be unaffected.

Description of Option Terms

LIVES PER GAME sets the initial number of lives (Chucks), not including bonus lives, given for each credit.

DIFFICULTY sets the game difficulty at levels 4 and above. Level 1 is easy, level 5 is hard.

BONUS STAGES. sets the scores at which the first or subsequent bonus lives are awarded. Additional bonus lives are awarded when the score reaches a multiple of the higher bonus stage. For example, when the factory settings of 25,000 and 100,000 are in effect, bonus lives are awarded at 25,000; 100,000; 200,000; 300,000; etc.

The first bonus stage may not exceed the second bonus stage. If the two are equal, only one bonus life is awarded when the score reaches the first bonus stage. For example, if both stages are set to 25,000, then bonus lives are awarded at 25,000; 50,000; 75,000; etc. Either one or both bonus stages can be turned off.

LEVEL SELECT BONUS if turned on, awards bonus lives when the player uses level select to start the game at or above level 10. An extra life is awarded for starting at

levels at or above every multiple of 10, with one additional life at level 125. For example, ten bonus lives would be awarded for starting at level 103. These bonus lives are given at the start of the game in addition to the **LIVES PER GAME**. The level at which bonus lives are earned and the current number of lives awarded are displayed with Chuck heads during level select.

LEVEL SELECT MODE effects how the level select feature is handled. There are four possible settings:

- **NORMAL** allows the player to select a starting level if the last game ended less than 15 seconds before, and if the maximum level achieved in the last game was greater than level one. If both of these cases hold, the player is allowed to select a starting level up to the maximum level achieved in the last game.
- **CONSTANT** always allows the player to select a starting level up to at least level 9. If the last game ended less than 15 seconds before, the player is allowed to select up to the maximum level achieved in the last game.
- **DEMO** always allows the player to select up to the maximum Food Fight level, for example, level 125. This setting would probably not be used for a game out on location, but is useful to demonstrate the performance of the game at high levels.
- **OFF** causes no level select display to occur.

ATTRACT SOUNDS disables the attract mode sounds if in the **OFF** setting.

COIN COUNTERS causes both coin mechanisms to drive the same coin counter if in the **ONE** setting.

Table 2-5 Option Settings

| Option | Settings Available | Factory Setting |
|--------------------|----------------------------------|-----------------|
| Lives per game | 2-5 | 3 |
| Difficulty | 1-5 | 2 |
| First bonus stage | Off, 5000-1,000,000 | 25,000 |
| Higher bonus stage | Off, 5000-1,000,000 | 100,000 |
| Level select bonus | Off/On | On |
| Level select mode | Normal, constant, demo, off | Constant |
| Attract sounds | Off/On | On |
| Language | English, German, Spanish, French | English |
| Cocktail mode | Off/On | Off |
| Coin counters | One/Two | One |

RESTORE SETTINGS resets the displayed option settings to one of the following:

- **CURRENT** displays the option settings in effect before the option menu was entered.
- **FACTORY** displays the option settings from the program ROM.

NOTE

Remember that the high scores and statistics will NOT be affected if the options menu is ended by turning off the self-test switch.

CLEAR VALUES resets the high-score table to its factory setting and resets to zero all the items on the statistics display, except for the TOTAL TIME and TOTAL CREDITS. The clear takes effect when the options menu is ended using the one-player start button.

Illustrated Parts Lists

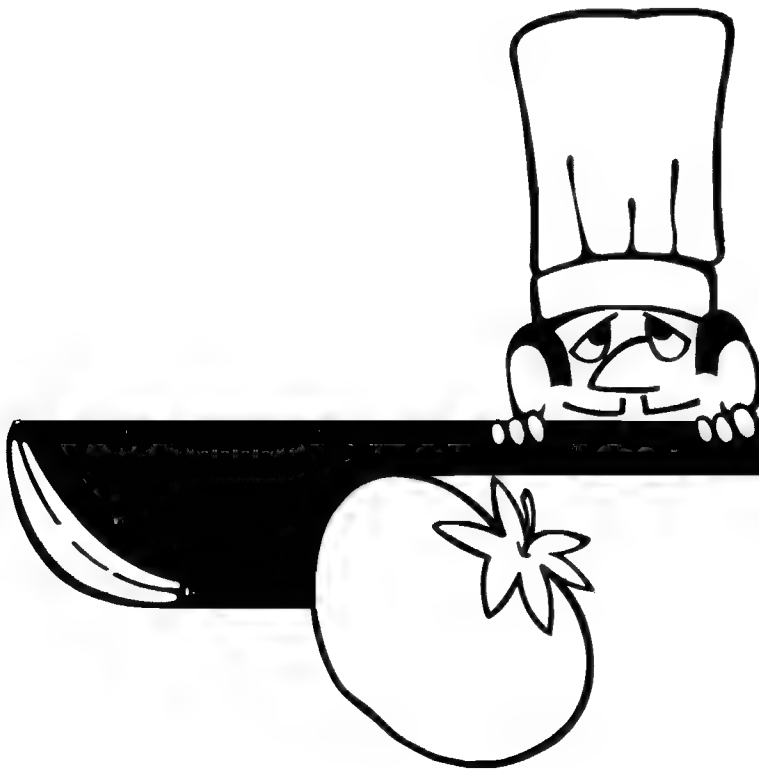
This chapter provides information you need to order parts for your game. Common hardware (screws, nuts, washers, etc.) has been deleted from most of the parts lists. However, there is a parts list for the hardware to mount the game PCB and Regulator/Audio II PCB to the cabinet.

The PCB parts lists are arranged in alphabetical order by component. Each component subsection is arranged alphanumerically by reference designator.

Other parts lists are arranged alphanumerically by Atari part number. In these parts lists, all A-prefix numbers come first. Following these are numbers in sequence evaluated up to the hyphen, namely 00- through 99-, then 000598- through approximately 201000-.

When ordering parts, please give the part number, part name, number of this manual, and serial number of your game. This will aid in filling your order rapidly and correctly. We hope the results will be less downtime and more profit from your game.

Atari Customer Service numbers are listed on the inside front cover of this manual.



Chapter 3

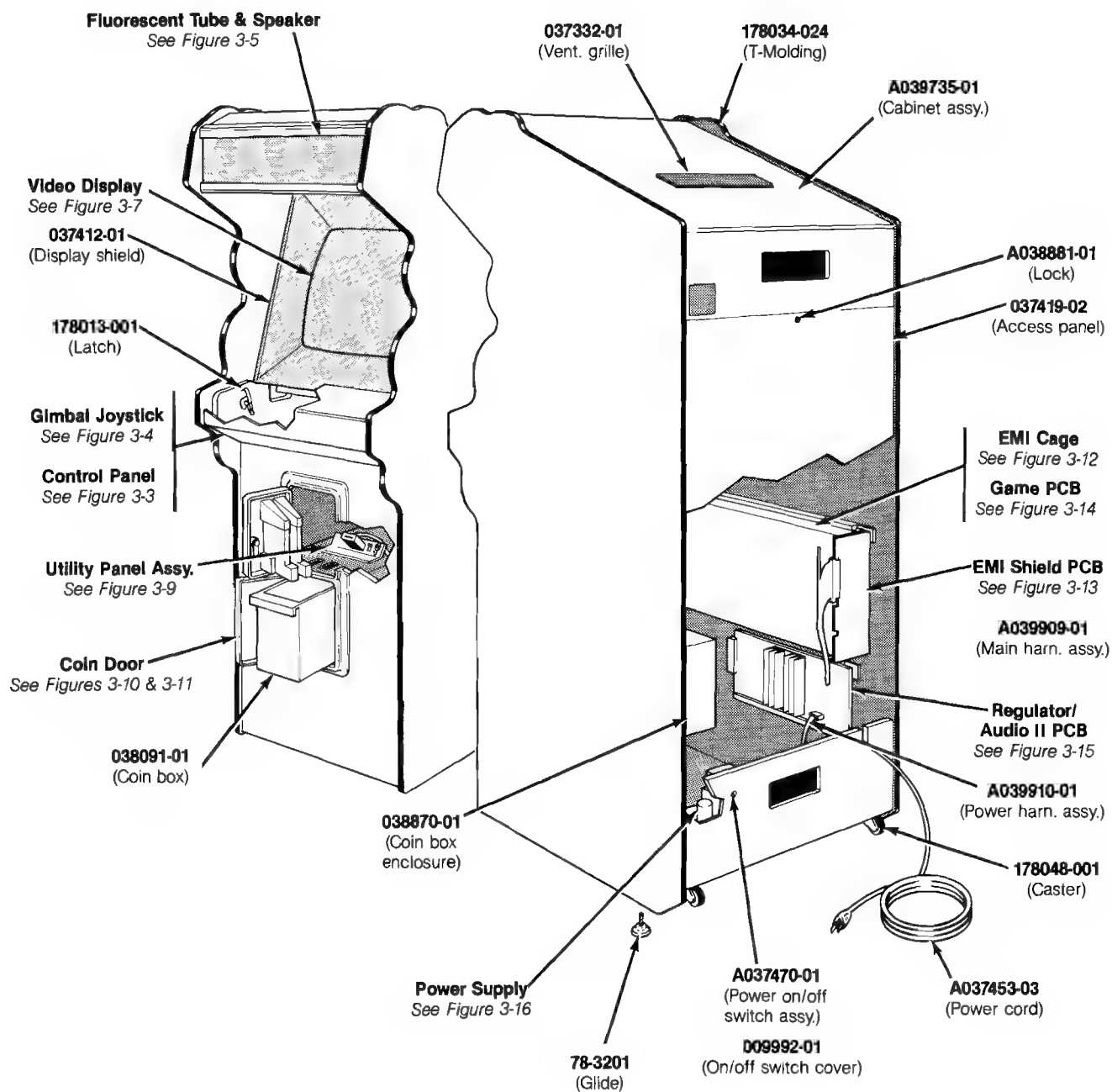
**Manuals, Schematics, & Self-
Test Label—**
See parts list on following page


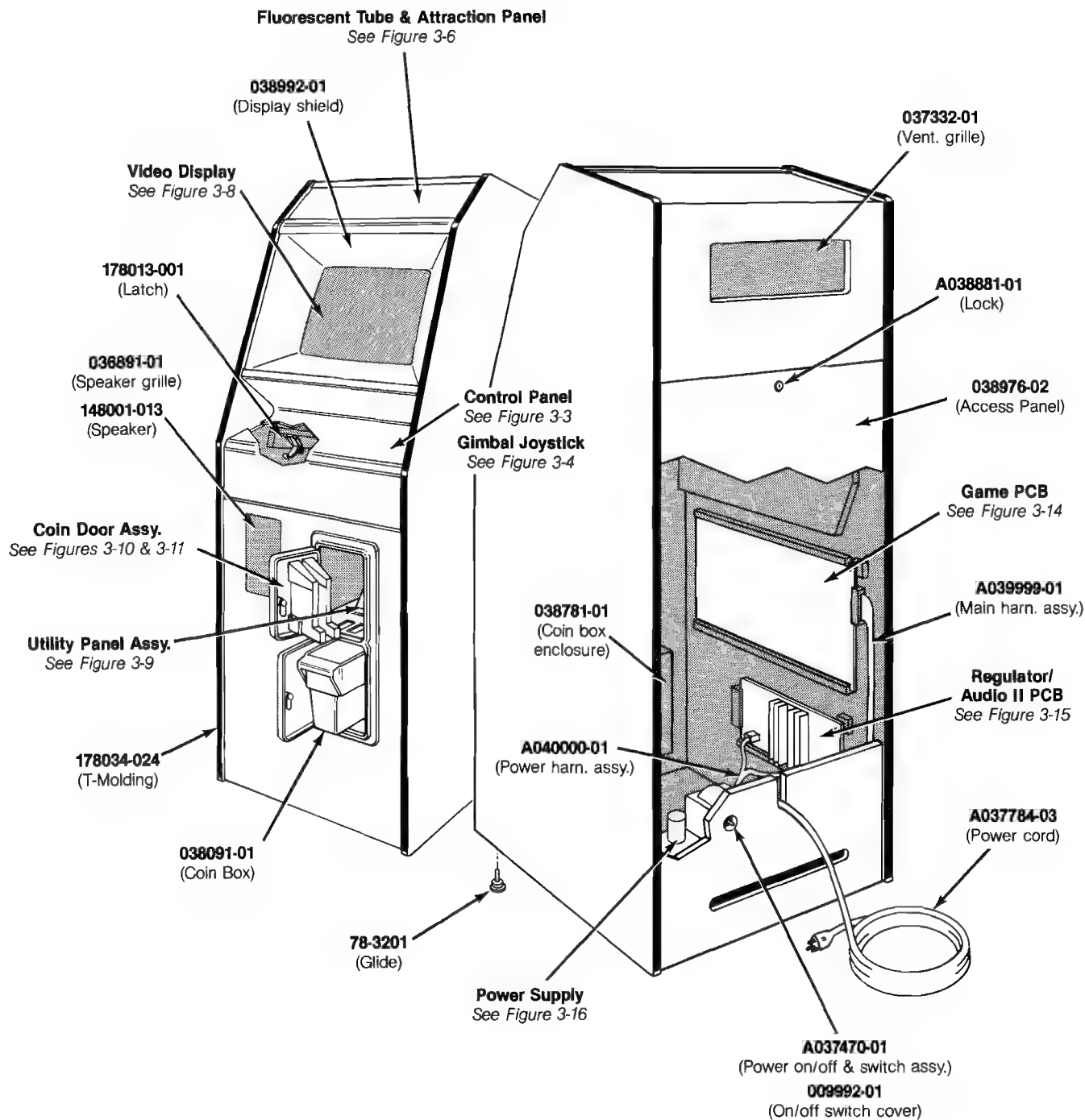
Figure 3-1 Cabinet-Mounted Assemblies
US-Built Game A039734-01 A

Cabinet-Mounted Assemblies Parts List

| Part No. | Description |
|---|--|
| A037453-03 | Strain-Relief Power Cord (U.S. and Canada) |
| A037470-01 | Power On/Off Switch and Mounting Plate Assembly |
| A038881-01 | Lock Assembly (for rear access panel) Acceptable substitute is part no. A038881-03 |
| A039735-01 | Cabinet Assembly (includes glides and PCB retainers, but not the rear access panel) |
| A039909-01 | Main Harness Assembly |
| A039910-01 | Power Harness Assembly |
| <i>The following four items are technical information supplements to this game:</i> | |
| SP-229 | Food Fight Schematic Package |
| ST 229-01 | Food Fight Label with Self-Test Procedure and Option Switch Settings |
| TM-160 | Service Manual for 19-Inch Electrohome Color Raster Display (use with part no. 92-049) Acceptable substitute is TM- 220, for use with part no. 139003-1004 |
| TM-229 | Food Fight Operators Manual with Illustrated Parts List |
| 78-3201 | Adjustable Glide |
| 009992-01 | Power On/Off Switch Cover |
| 036495-01 | Speaker Grille (not shown) |
| 037332-01 | Ventilation Grille |
| 037419 02 | Rear Access Panel (does not include lock) |
| 038091-01 | Molded Coin Box |
| 038870-01 | Coin Box Enclosure |
| 039752-01 | Video Display Shield |
| 178013-001 | Spring Draw Latch |
| 178034-024 | ¾-Inch Black Plastic T-Molding |
| 178048-001 | 2-Inch Rigid Caster |

**Manuals, Schematics, & Self-Test
Label—**

See parts list on following page



**Figure 3-2 Cabinet-Mounted Assemblies
Ireland-Built Game A040005-02 A**

Cabinet-Mounted Assemblies Parts List

| Part No. | Description |
|---|---|
| A037470-01 | Power On/Off Switch & Mounting Plate Assembly |
| A037784-03 | Strain-Relief Power Cord (United Kingdom, Ireland, Lebanon, Saudi Arabia, India, Hong Kong, Singapore, Egypt, Nigeria, Republic of South African, Zimbabwe) |
| A038881-01 | Lock Assembly (for rear access panel) |
| A039999-01 | Main Harness Assembly |
| A040000-01 | Power Harness Assembly |
| A040006-01 | Cabinet Assembly (includes glides and PCB retainers, but not the rear access panel) |
| <i>The following five items are technical information supplements to this game:</i> | |
| SP-229 | Food Fight Schematic Package |
| ST-229-01 | Food Fight Label with Self-Test Procedure and Option Switch Settings |
| TM 160 | Service Manual for 19 Inch Electrohome Color Raster Display (use with part no. 92 049) or |
| TM-201 | Service Manual for 19-Inch Wells Gardner Color Raster Display (use with part no. 92-055) |
| TM-229 | Food Fight Operators Manual with Illustrated Parts List |
| 72 6810S | #8 x 5/8-Inch Cross-Recessed, Pan-Head Screw |
| 78-3201 | Adjustable Glide |
| 009992-01 | Power On/Off Switch Cover |
| 034536-02 | Foam Pad (not shown) |
| 036891-01 | Speaker Grille |
| 037332-01 | Ventilation Grille |
| 038976-02 | Rear Access Panel (does not include lock) |
| 038091-01 | Molded Coin Box |
| 038781-01 | Coin Box Enclosure |
| 038992-01 | Video Display Shield |
| 148001-013 | Speaker |
| 175004-708 | #8 Flat Fiber Washer |
| 178013-001 | Spring Draw Latch |
| 178034-024 | 3/4 Inch Black Plastic T Molding |

! WARNING !

Players may receive an electrical shock if this control panel is not properly grounded! After servicing any parts on the panel, make sure that the ground wire is firmly attached to the metal tab on the inside of the control panel.

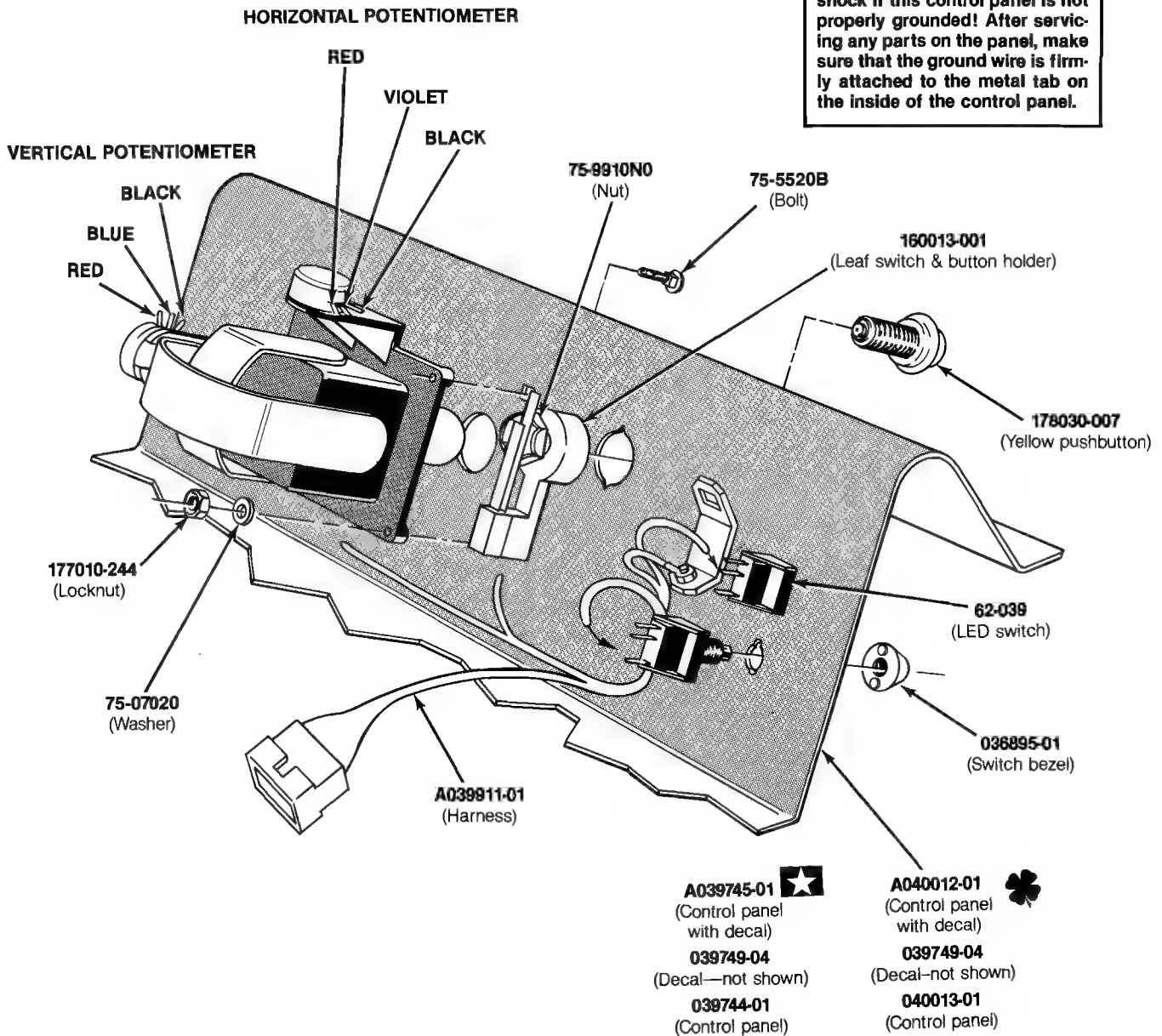
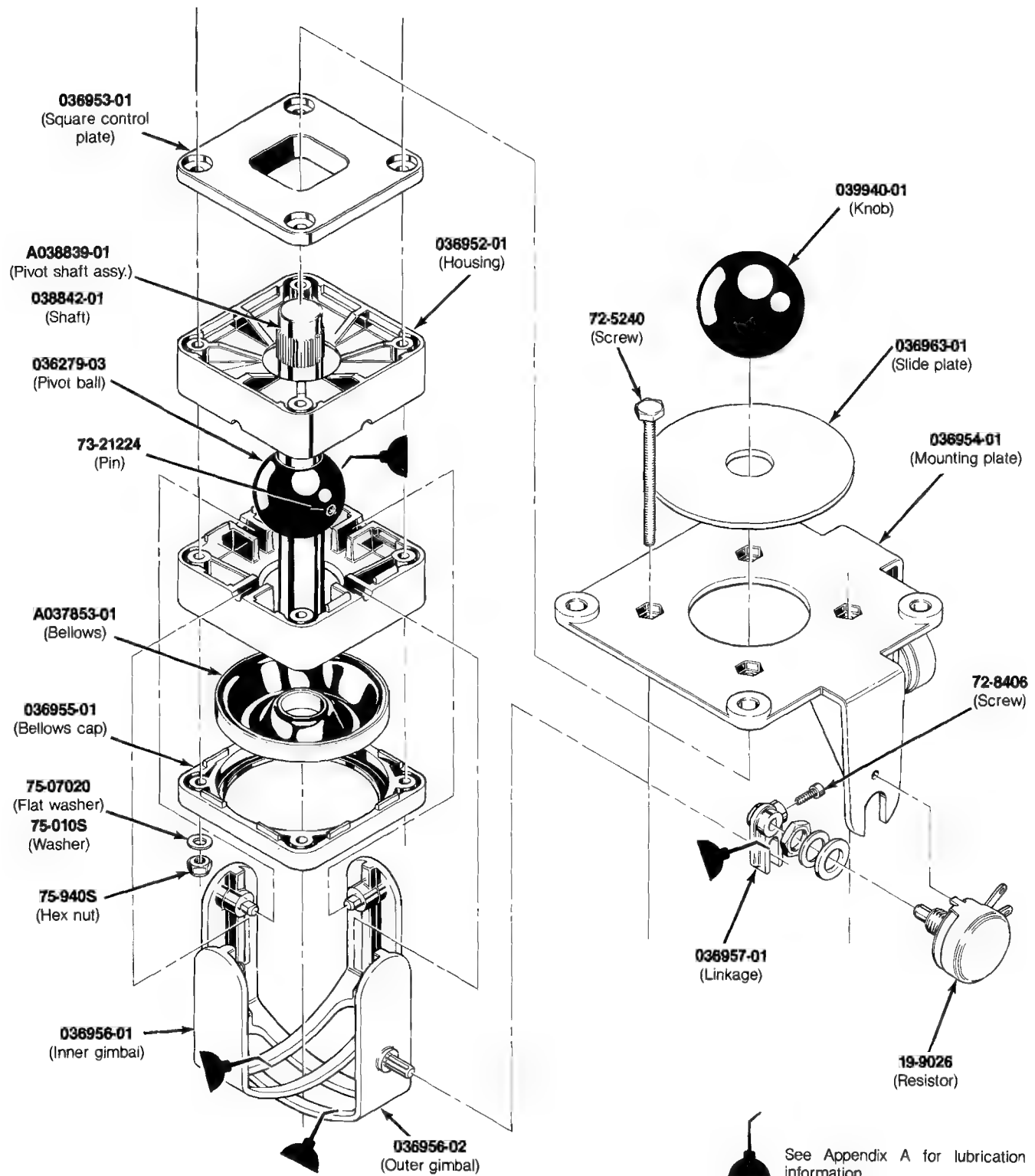


Figure 3-3 Control Panel Assembly
US-Built Game A039746-01 A
Ireland-Built Game A040011-01 A

Control Panel Assembly Parts List

| Part No. | Description |
|------------------------------|---|
| <i>US-Built</i> | |
| A039745-01 | Control Panel with Decal |
| 78-6900402 | Vinyl Foam Single-Coated Adhesive Tape, ¼-Inch Wide x ⅛-Inch Thick (24 inches required) |
| 039744-01 | Control Panel |
| 039749-04 | Control Panel Decal (not shown) |
| <i>Ireland-Built</i> | |
| A040012-01 | Control Panel with Decal |
| 039749-04 | Control Panel Decal (not shown) |
| 040013-01 | Control Panel |
| 179125-001 | Grounding Terminal (not shown) |
| <i>US- and Ireland-Built</i> | |
| A038838-02 | Gimbal Joystick Assembly |
| A039911-01 | Control Panel Harness Assembly |
| 62-039 | SPDT Momentary Pushbutton Start Switch with Red Light-Emitting Diode |
| 75-07020 | #¼ Steel Flat Washer |
| 75-5520B | #¼-20 × 1¼-Inch Black Carriage Bolt |
| 75-9910N0 | #⅝ × 11 Stamped Nut |
| 036895-01 | Black Molded Switch Bezel |
| 160013-001 | Leaf Switch and Button Holder (leaf switch only is part no. 160012-001) |
| 177010-244 | #¼-20 Hex Locknut |
| 178030-007 | Yellow Pushbutton Assembly |



**Figure 3-4 Gimbal Joystick Assembly
A038838-02 A**

Gimbal Joystick Assembly Parts List

| Part No. | Description |
|------------|--|
| A037853-01 | Bellows Assembly |
| A038839-01 | Pivot Shaft Assembly (includes pivot ball, pivot shaft and slotted pin) |
| 19-9026 | 5 k Ω , \pm 20%, 2 1/4 W Variable Resistor (acceptable substitute is part no. 119000-502) |
| 72-5240 | #10-32 x 2 1/2-Inch, Zinc-Plated Steel Machine Screw |
| 72-8406 | #4-40 x 3/8-Inch Socket-Head Steel Machine Screw |
| 73-21224 | 3/16-Inch Diameter x 1 1/2-Inch Long Slotted Pin |
| 75-010S | #10 Flat Zinc-Plated Steel Washer |
| 75-07020 | 3/8-Inch Interior Diameter Special Flat Washer |
| 75-940S | #10-32 Self-Locking Hex Nut |
| 036279-03 | Pivot Ball |
| 036952-01 | Pivot Ball Housing (two required per handle) |
| 036953-01 | Square Control Plate |
| 036954-01 | Mounting Plate |
| 036955-01 | Bellows Cap |
| 036956-01 | Inner Gimbal |
| 036956-02 | Outer Gimbal |
| 036957-01 | Gimbal Linkage |
| 036963-01 | Slide Plate |
| 038842-01 | Pivot Shaft |
| 039940-01 | Pivot Ball Knob |
| 178027 001 | Nyogel 779 Lubricant |

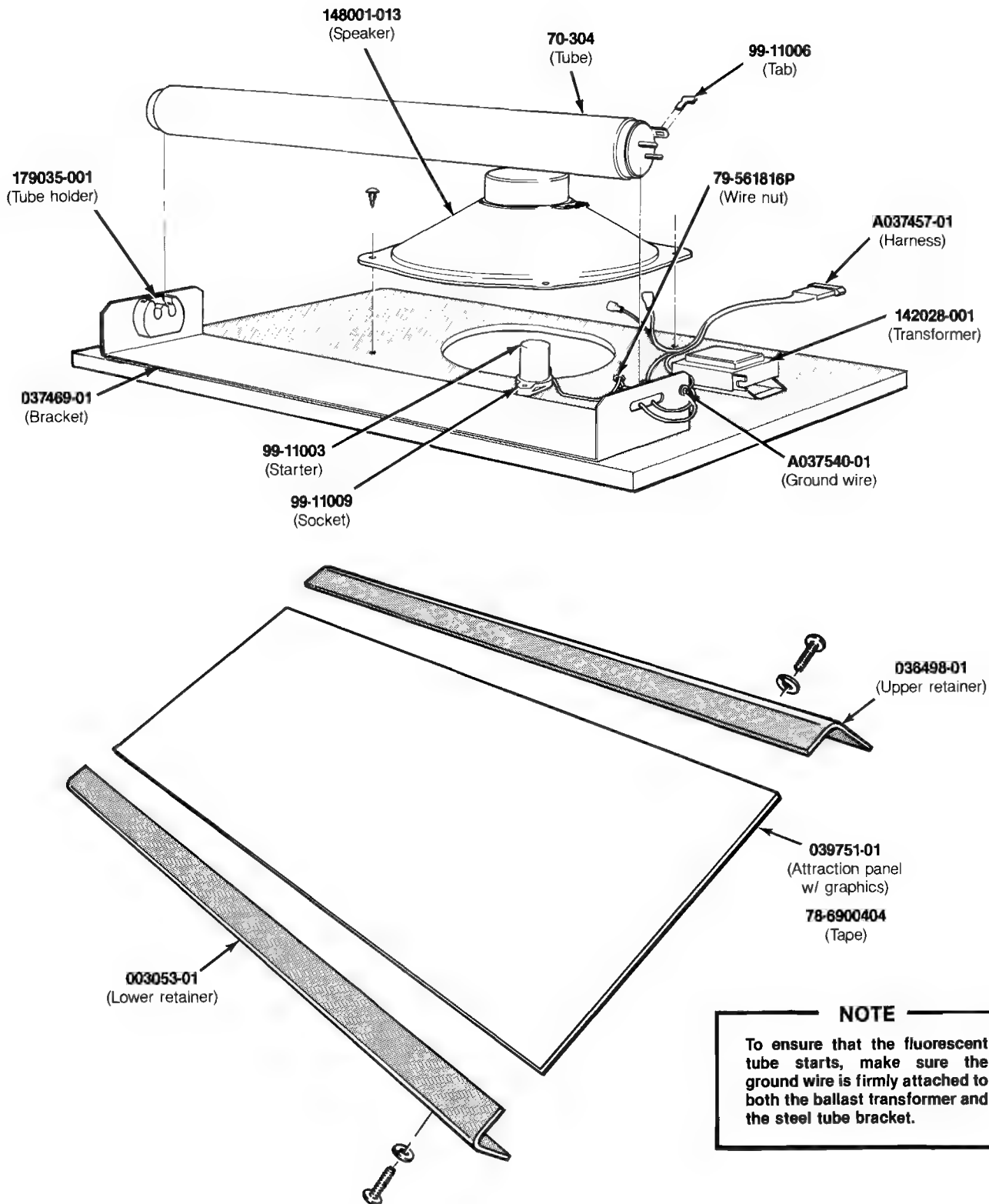


Figure 3-5 Fluorescent Tube and Speaker Assembly
A039737-01 A
US-Built Game

Fluorescent Tube and Speaker Assembly Parts List

| Part No. | Description |
|------------|---|
| A037457-01 | Tube and Speaker Harness Assembly |
| A037540-01 | Ground Wire with Ring Lug |
| 70-304 | 18-Inch, 15-Watt, Cool White Fluorescent Tube |
| 78-6900404 | Vinyl Foam Single-Coated Adhesive Tape, ¼-Inch Wide x ¼-Inch Thick (48 inches required) |
| 79-561816P | Spring-Connector Wire Nut for 16- to 18-Gauge Wires |
| 99-11003 | Fluorescent Tube Starter |
| 99-11006 | Fluorescent Tube Locking Tab (consists of two pieces) |
| 99-11009 | Starter Socket |
| 003053-01 | Lower Attraction Panel Retainer |
| 036498-01 | Upper Attraction Panel Retainer |
| 037469-01 | Steel Tube Bracket |
| 038151-01 | 15-Inch Jumper Wire |
| 039751-01 | Attraction Panel with Graphics |
| 142028-001 | 60 Hz, 118-Volt, Ballast Trsformer (used on A038161-01 assembly) |
| 148001-013 | 6 × 9-Inch Oval, 4 Ω, 6-Ounce, Shielded High-Fidelity Speaker |
| 179035-01 | 2-Pin Fluorescent Tube Holder |
| 179125-001 | Grounding Clip (not shown) |

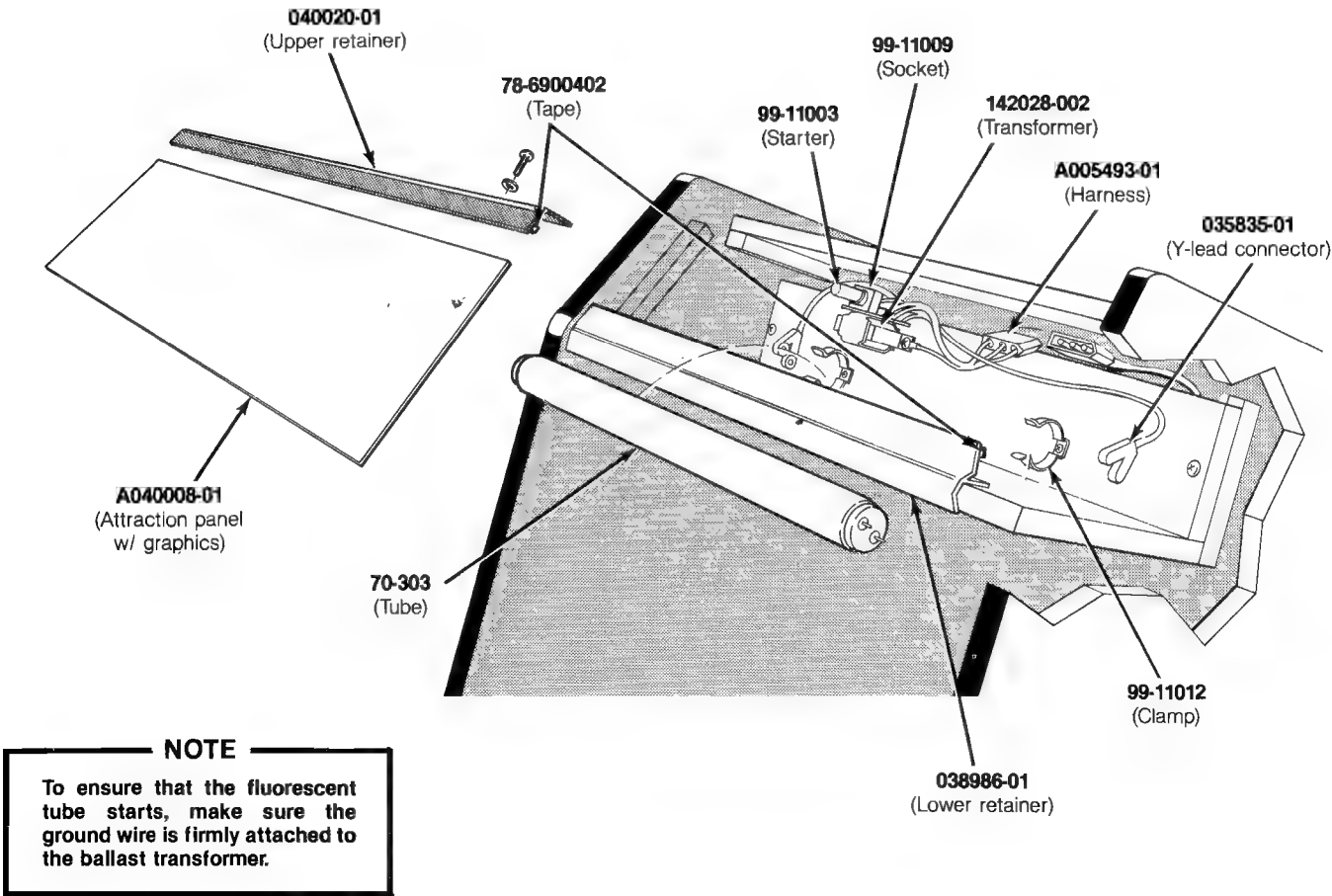
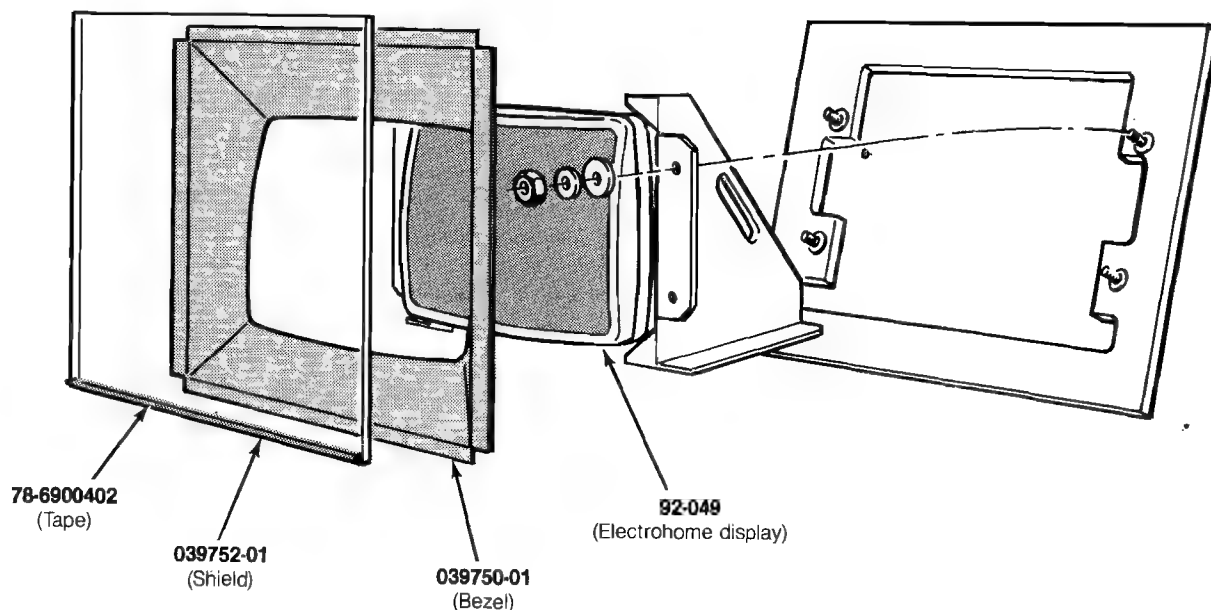


Figure 3-6 Fluorescent Tube and Attraction Panel
Ireland-Built Game

Parts List

| Part No. | Description |
|------------|---|
| A005493-01 | Fluorescent Tube Harness Assembly |
| A040008-01 | Attraction Panel with Graphics |
| 70-303 | 18-Inch, 15-Watt, Cool White Fluorescent Tube |
| 78-6900402 | Vinyl Foam Single-Coated Adhesive Tape, ¼-Inch Wide x ⅛-Inch Thick (not shown—48 inches required) |
| 99-11003 | Fluorescent Tube Starter |
| 99-11009 | Starter Socket |
| 99-11012 | 1 ⅛-Inch Fluorescent Tube Clamp |
| 035835-01 | 12-Inch Y-Lead Connector |
| 038986-01 | Lower Attraction Panel Retainer |
| 040020-01 | Upper Attraction Panel Retainer |
| 142028-001 | 50 Hz, 118 V, Ballast Transformer |



WARNING

Shock Hazard

The following procedure should only be performed by a qualified service technician. Before removing or repairing the video display, unplug the game.

High voltages may exist in any video display, even with power disconnected. Use extreme caution and do not touch electrical

parts of the display yoke area with your hands or with metal objects in your hands!

Discharge the high-voltage from the cathode ray tube as follows: Attach one end of a large, well-insulated, 20-kV jumper to ground. Momentarily touch the free end of the grounded jumper to the anode by sliding it under

the anode cap. Wait two minutes and discharge the anode again.

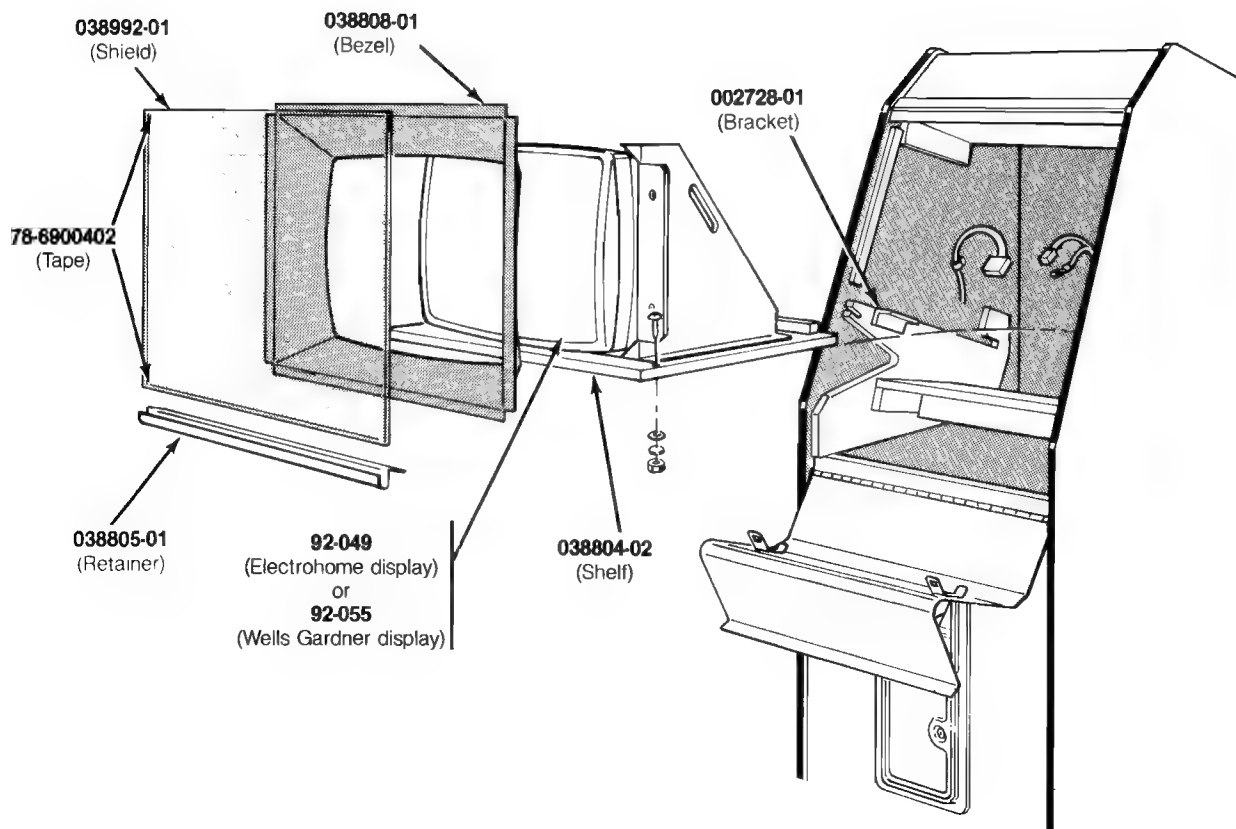
Implosion Hazard

If you drop the display and the picture tube breaks, it will implode! Shattered glass and the yoke can fly six feet or more from the implosion. Use care when replacing any display.

**Figure 3-7 Video Display
US-Built Game**

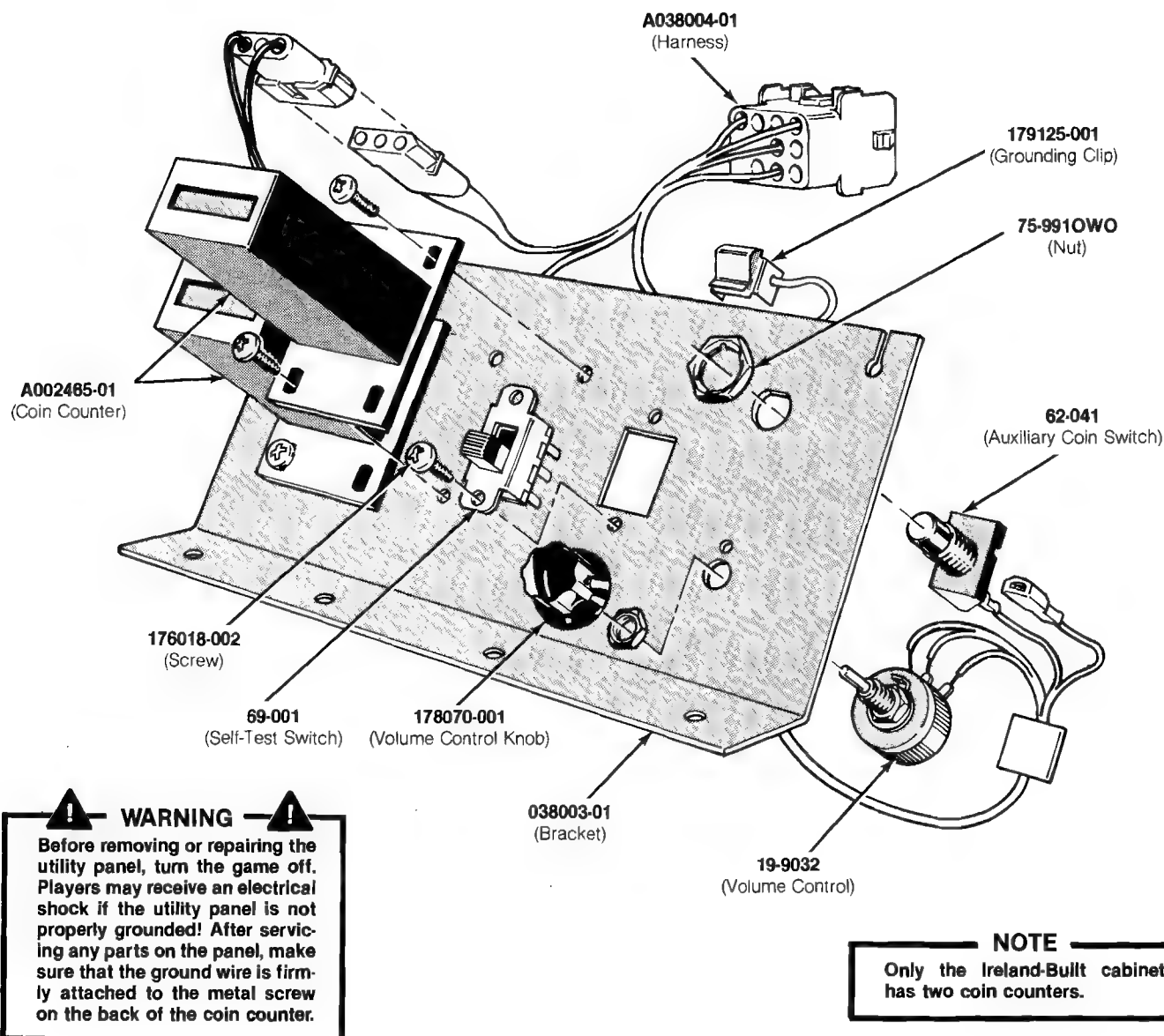
Parts List

| Part No. | Description |
|------------|--|
| 78-6900402 | Vinyl Foam Single-Coated Adhesive Tape, ¼-Inch Wide x ⅛-Inch Thick (24 inches required) |
| 039750-01 | Display Bezel |
| 039752-01 | Display Shield with Graphics |
| 92-049 | 19-Inch Electrohome Color Raster-Scan Display (Acceptable substitute is part no. 139003-1004—19-Inch Matsushita Color Raster-Scan Display) |



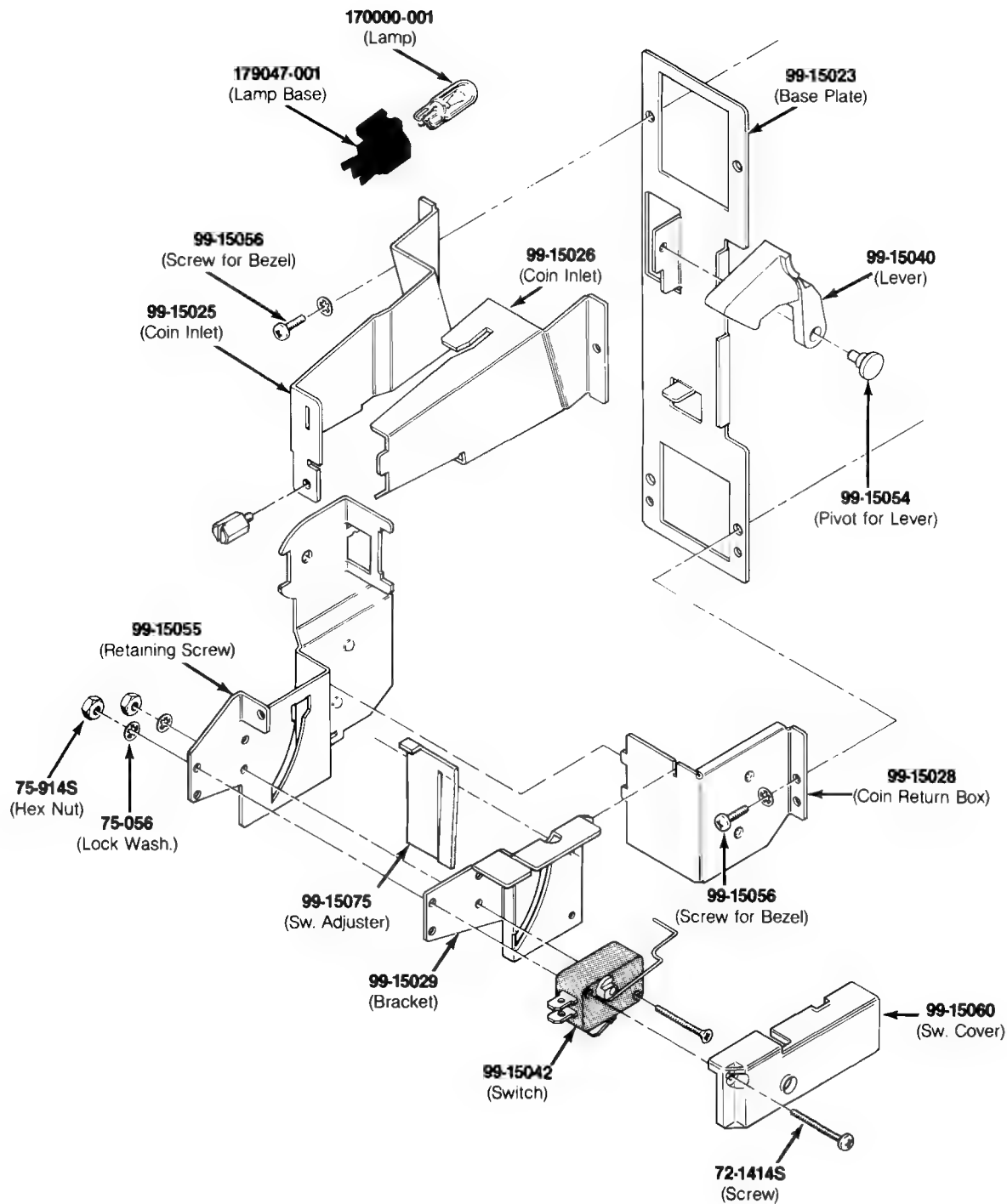
**Figure 3-8 Video Display
Ireland-Built Game
Parts List**

| Part No. | Description |
|------------|---|
| 78-6900402 | Vinyl Foam Single-Coated Adhesive Tape, ¼-Inch Wide x ⅛-Inch Thick (48 inches required—not shown) |
| 92-049 | 19-Inch Electrohome Color Raster-Scan Display or |
| 92-055 | 19-Inch Wells Gardner Color Raster-Scan Display |
| 002728-01 | Metal Support Bracket |
| 038804-02 | Display Shelf |
| 038805-01 | Display Shield Retainer |
| 038808-01 | Display Bezel |
| 038992-01 | Display Shield |

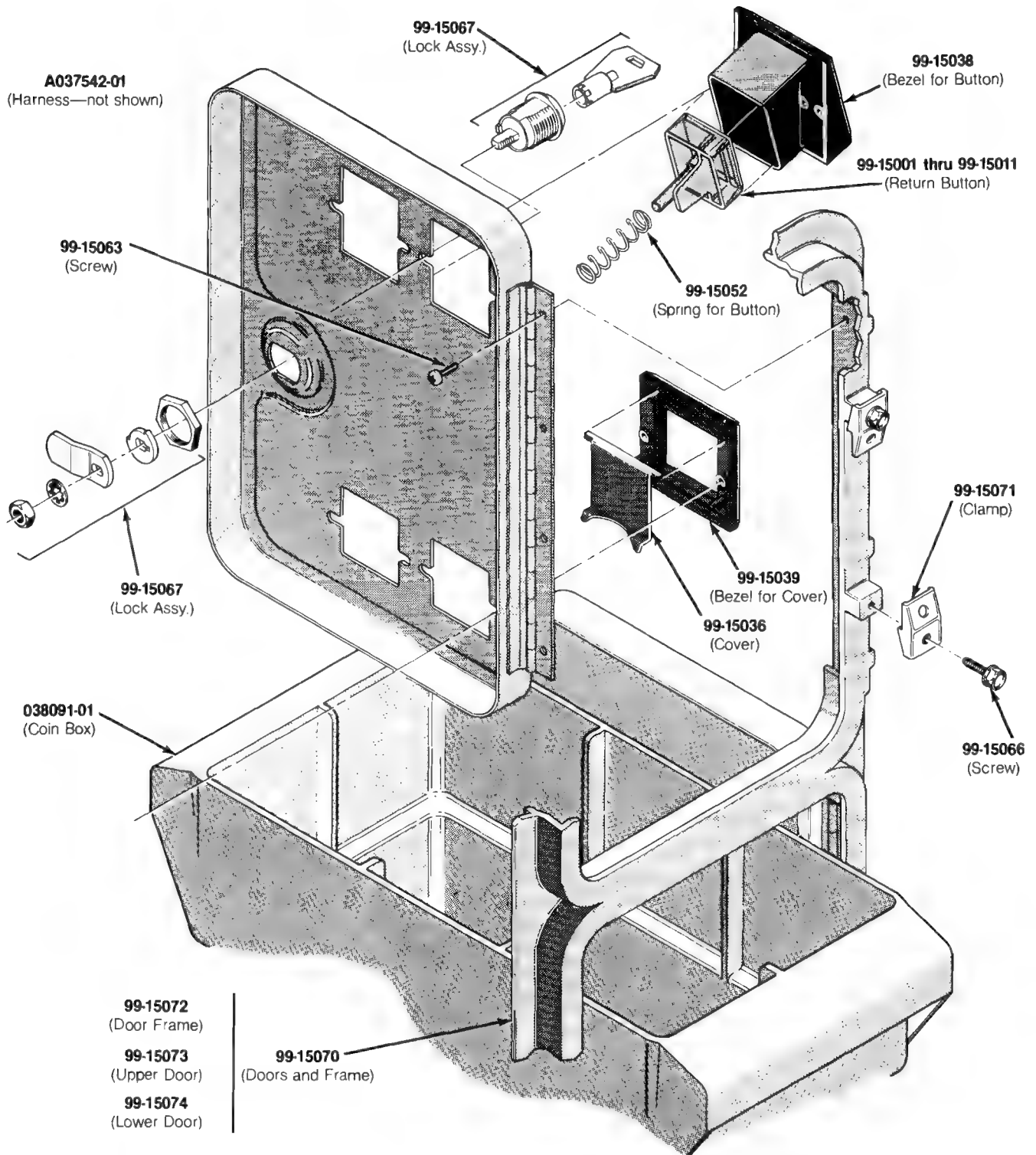


**Figure 3-9 Utility Panel Assembly
A038002-01 & -02 G
Parts List**

| Part No. | Description |
|------------|--|
| A002465-01 | 6 V Coin Counter |
| A038004-01 | Utility Panel Harness |
| 19-9032 | Volume Control |
| 62 041 | SPDT Momentary-Contact Pushbutton Auxiliary Coin Switch with Black Cap |
| 69-001 | DPDT Self-Test Switch |
| 038003-01 | Utility Panel |
| 75-9910W0 | 1 $\frac{1}{2}$ -32 Stamped Nut |
| 176018-002 | #6-32 x $\frac{1}{2}$ -Inch Machine Screw |
| 178070-001 | Volume Control Knob |
| 179125-001 | Grounding Clip (not shown) |



**Figure 3-10 Vertically Mounted Coin Door
171034-xxx A**



171034-001 — U.S. 25¢/25¢ Coin Door
 171034-003 — Canadian 25¢/25¢ Coin Door
 171034-005 — U.K. 10 P/50 P Coin Door

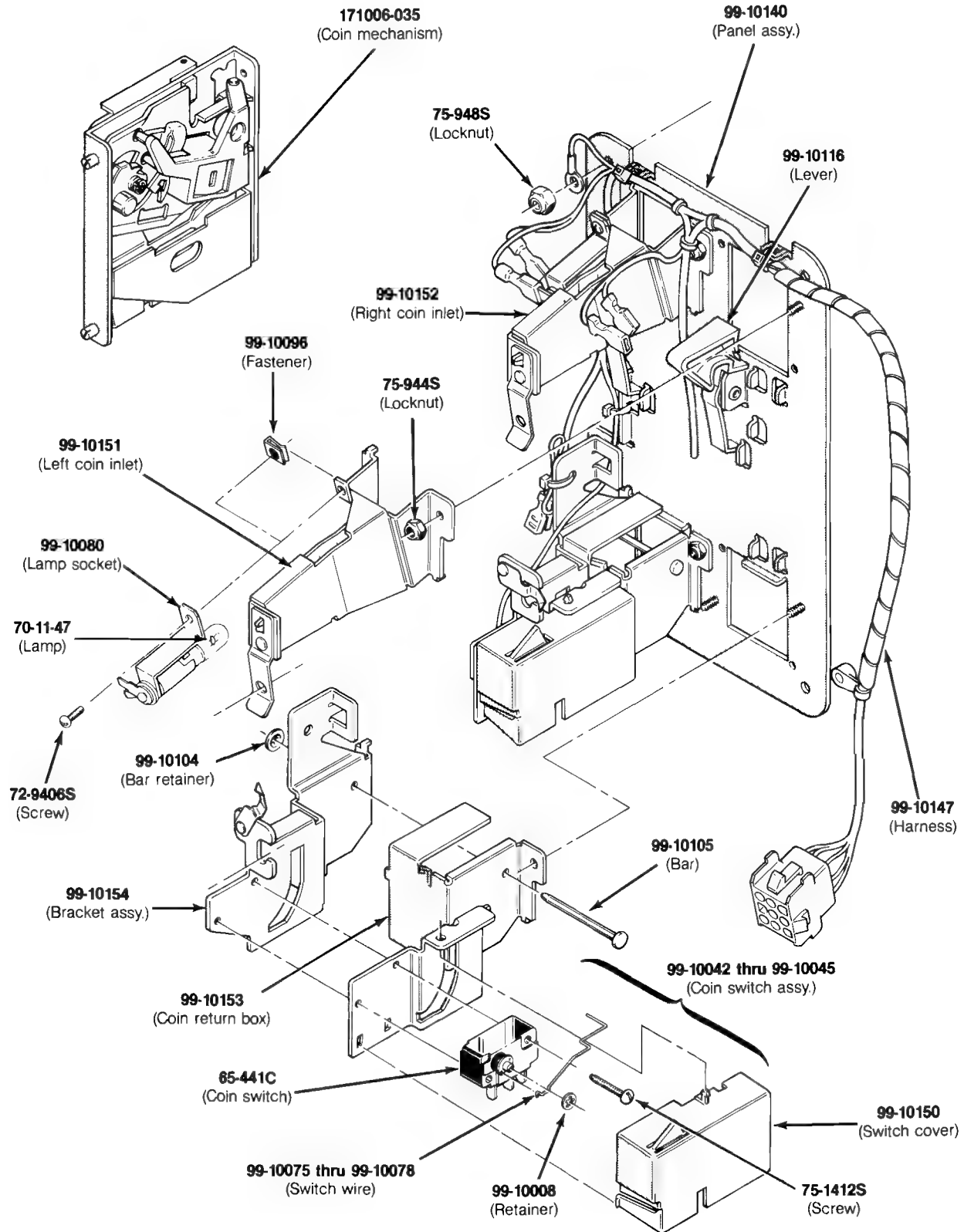
171034-006 — U.K. 20 P/50 P Coin Door
 171034-009 — German 2 DM/1 DM Coin Door
 171034-010 — German 2 DM/5 DM Coin Door

171034-011 — German 1 DM/5 DM Coin Door
 171034-015 — French 2 Fr/1 Fr Coin Door

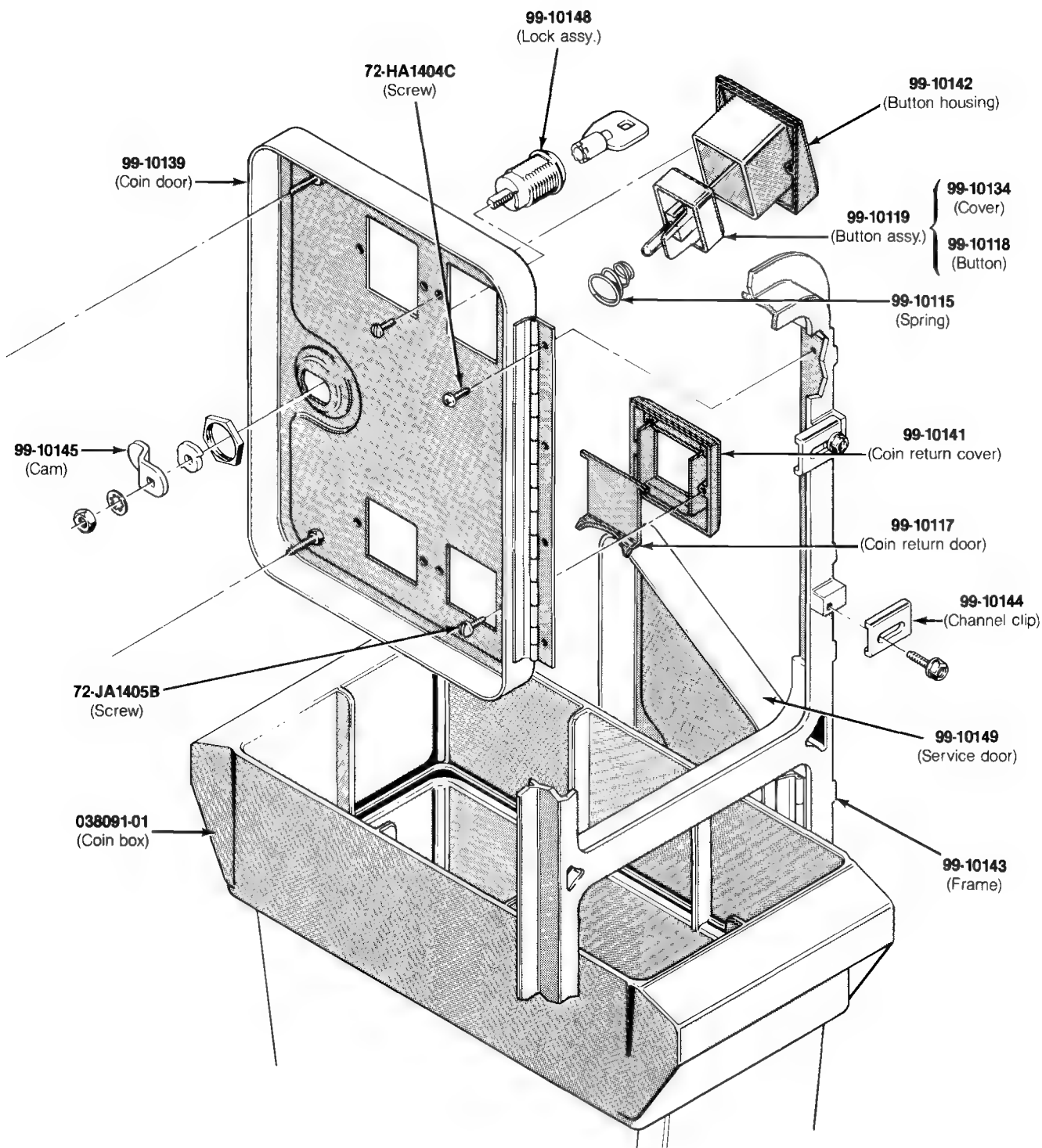
Figure 3-10 Vertically Mounted Coin Door, continued
171034-xxx A

Vertically Mounted Coin Door Parts List

| <i>Part No.</i> | <i>Description</i> |
|-----------------|---|
| A037542-01 | Harness Assembly |
| 72-14148 | #4-40 × 7/8-Inch Cross-Recessed Pan-Head Steel Machine Screw |
| 75-056 | #6 Internal-Tooth Zinc-Plated Steel Lock Washer |
| 75-9145 | #4-40 Steel Machine Hex Nut |
| 75-34148 | #4-40 × 7/8-Inch 82° Cross-Recessed Flat-Head Steel Machine Screw |
| 99-15001 | Coin Return Button with U.S. 25¢ Price Plate |
| 99-15002 | Coin Return Button with U.S. \$1 Price Plate |
| 99-15003 | Coin Return Button with German 1 DM Price Plate |
| 99-15004 | Coin Return Button with German 2 DM Price Plate |
| 99-15005 | Coin Return Button with German 5 DM Price Plate |
| 99-15006 | Coin Return Button with Belgian 5 Fr Price Plate |
| 99-15007 | Coin Return Button with French 1 Fr Price Plate |
| 99-15008 | Coin Return Button with Japanese 100 Yen Price Plate |
| 99-15009 | Coin Return Button with British 10 Pence Price Plate |
| 99-15010 | Coin Return Button with Australian 20¢ Price Plate |
| 99-15011 | Coin Return Button with Italian 100 Lire Price Plate |
| 99-15023 | Base Plate |
| 99-15025 | Left Half of Coin Inlet |
| 99-15026 | Right Half of Coin Inlet |
| 99-15027 | Side Plate of Coin Return Box |
| 99-15028 | Base Plate of Coin Return Box |
| 99-15029 | Switch Bracket |
| 99-15036 | Metal Coin Return Cover |
| 99-15038 | Bezel for Coin Return Button |
| 99-15039 | Metal Bezel for Coin Return Cover |
| 99-15040 | Coin Return Lever |
| 99-15042 | Coin Switch for U.S. 25¢ |
| 99-15052 | Spring for Coin Return Button |
| 99-15054 | Pivot for Coin Return Lever |
| 99-15055 | Retaining Screw |
| 99-15056 | #4-40 × 5/16-Inch Cross-Recessed Pan-Head Steel Machine Screw |
| 99-15060 | Switch Cover |
| 99-15063 | Screw for Hinge |
| 99-15066 | Screw for Clamp |
| 99-15067 | Lock Assembly |
| 99-15070 | Doors and Frame |
| 99-15071 | Clamp for Frame |
| 99-15072 | Door Frame |
| 99-15073 | Upper Door |
| 99-15074 | Lower Door |
| 99-15075 | Switch Adjuster |
| 038091-01 | Coin Box (Not included in assembly—Acceptable substitute is part number A037491-01) |
| 170000-001 | 6.3 V Miniature Wedge-Base Incandescent Lamp |
| 171006-035 | Metal Coin Mechanism |
| 179047-001 | Lamp Base |



**Figure 3-11 American-Made Coin Door Assembly
171027-001 A**



171034-001 — U.S. 25¢/25¢ Coin Door
 171034-003 — Canadian 25¢/25¢ Coin Door
 171034-005 — U.K. 10 P/50 P Coin Door

171034-006 — U.K. 20 P/50 P Coin Door
 171034-009 — German 2 DM/1 DM Coin Door
 171034-010 — German 2 DM/5 DM Coin Door

171034-011 — German 1 DM/5 DM Coin Door
 171034-015 — French 2 Fr/1 Fr Coin Door

Figure 3-11 American-Made Coin Door Assembly, continued
171027-001 A

American-Made Coin-Door Assembly Parts List

| Part No. | Description |
|------------|--|
| 171006-035 | Metal Coin Mechanism for U.S. \$.25 |
| 65-441C | Coin Switch |
| 70-11-47 | Miniature Bayonet Lamp |
| 72-9406S | #4-40 x $\frac{3}{8}$ -Inch Truss-Head Screw |
| 72-HA1404C | #4-40 x $\frac{1}{4}$ -Inch Pan-Head Screw |
| 72-JA1405B | #4-40 x .31-Inch Pan-Head Screw |
| 75-1412S | #4-40 x $\frac{3}{4}$ -Inch Pan-Head Screw |
| 75-944S | #4-40 Locknut |
| 99-10008 | Retainer |
| 99-10042 | Coin Switch Assembly for Belgian 5 Fr and U.S. \$.25 |
| 99-10043 | Coin Switch Assembly for German 1 DM, Japanese 100 Yen, Swiss 1 Fr |
| 99-10044 | Coin Switch Assembly for German 2 DM, Italian 100 L, U.S. \$1.00 |
| 99-10045 | Coin Switch Assembly for Australian \$.20, German 5 DM, British 10 P |
| 99-10068 | Coin Return Chute |
| 99-10075 | Switch wire (included in coin switch assembly) |
| 99-10076 | Switch wire (included in coin switch assembly) |
| 99-10077 | Switch wire (included in coin switch assembly) |
| 99-10078 | Switch wire (included in coin switch assembly) |
| 99-10080 | Lamp socket |
| 99-10081 | Key holder |
| 99-10096 | Fastener |
| 99-10104 | Bar retainer |
| 99-10105 | Bar |
| 99-10115 | Spring |
| 99-10116 | Plastic Coin Return Lever |
| 99-10117 | Steel Coin Return Door |
| 99-10118 | Amber Coin Return Button |
| 99-10119 | Amber Coin Button for U.S. \$.25 |
| 99-10134 | Coin Button Cover |
| 99-10139 | Coin Door |
| 99-10140 | Coin Door Inner-Panel Assembly |
| 99-10141 | Diecast Coin Return Cover |
| 99-10142 | Diecast Button Housing |
| 99-10143 | Coin Door Frame |
| 99-10144 | Coin Door Channel Clip |
| 99-10145 | Offset Cam |
| 99-10146 | Coin Inlet Chute Assembly |
| 99-10147 | American-Made Coin Door Harness |
| 99-10148 | Lock Assembly |
| 99-10149 | Service Door |
| 99-10150 | Switch Cover |
| 99-10151 | Left Coin Inlet |
| 99-10152 | Right Coin Inlet |
| 99-10153 | Coin Return Box |
| 99-10154 | Bracket Assembly |

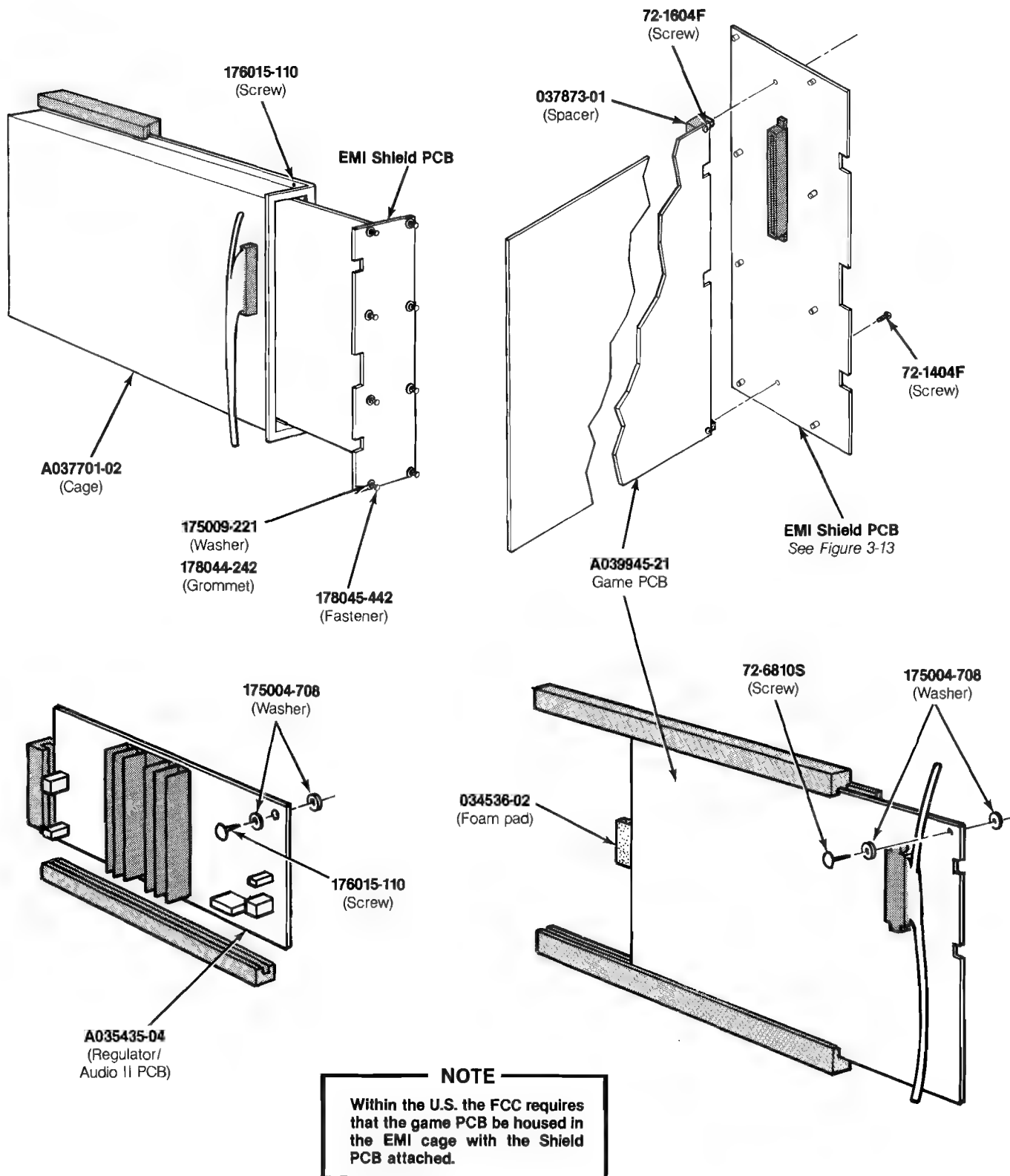
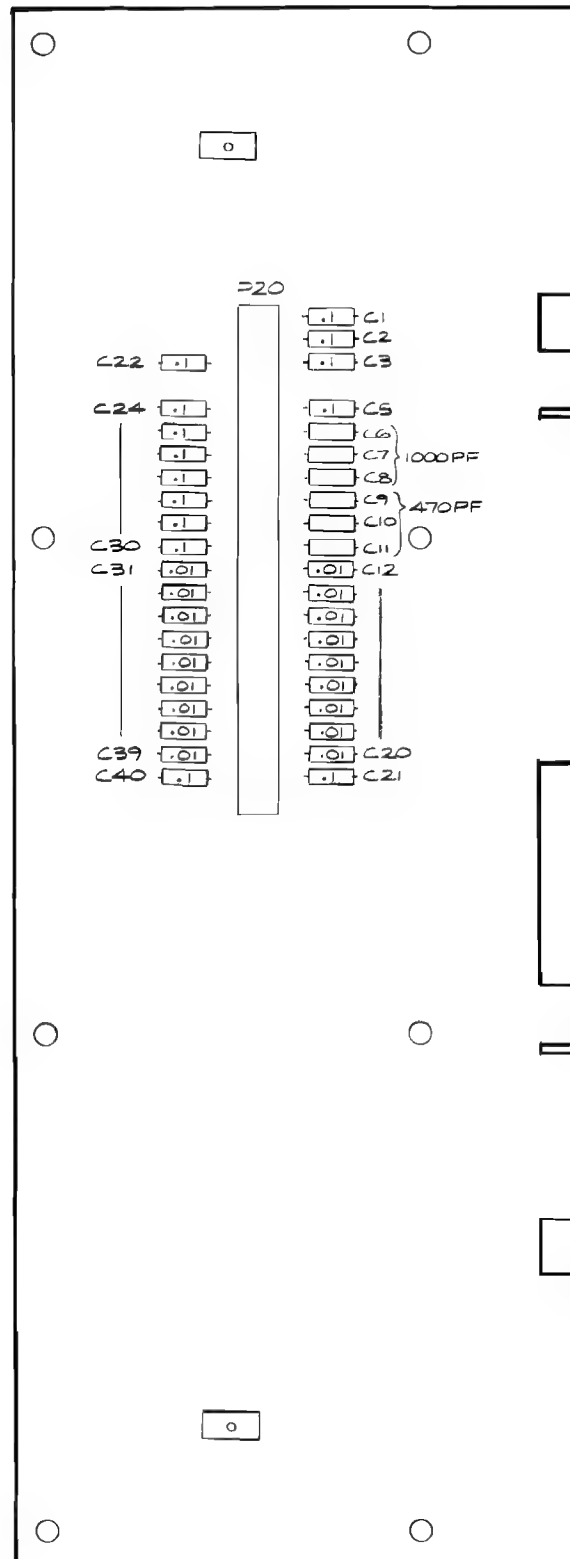


Figure 3-12 Electromagnetic Interference (EMI) Cage Assembly and Printed-Circuit Board Mounting Hardware

EMI Cage Assembly and Printed-Circuit Board Mounting Hardware Parts List

| Part No. | Description |
|---------------------------|--|
| <i>US-Built Game</i> | |
| A037701-02 | EMI Cage (includes guide) |
| A037430-02 | EMI Shield PCB |
| 72-1404F | #4-40 × ¼ Inch Cross-Recessed Steel Screw |
| 72-1604F | #6-32 × ¼-Inch Cross-Recessed Steel Screw |
| 037873-01 | Spacer |
| 175004-708 | #8 Flat Fiber Washer |
| 175009-221 | Plastic Washer |
| 176015-110 | #10 x ⅝-Inch Cross-Recessed Pan-Head Screw |
| 178044-242 | Grommet |
| 178045-442 | Snap-In Fastener |
| 179125-001 | Grounding Clip (not shown) |
| <i>Ireland-Built Game</i> | |
| 034536-02 | Foam Pad |
| 175004-708 | #8 Flat Fiber Washer |
| 72-6810S | #8 x ⅝-Inch Cross-Recessed Pan-Head Screw |



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Figure 3-13 EMI Shield PCB Assembly
A040253-01 A

EMI Shield PCB Assembly Parts List

| Designator | Description | Part No. |
|-------------------|--|------------|
| <i>Capacitors</i> | | |
| C1-C3 | 0.1 μ F, +80% -20%, 50 V Ceramic-Disk Capacitor | 122002-104 |
| C5 | 0.1 μ F, +80% -20%, 50 V Ceramic-Disk Capacitor | 122002-104 |
| C6-C8 | 1000 pF, \pm 5%, 100 V, NPO Ceramic-Disk Axial-Lead Capacitor (Acceptable substitute is part no. 122002-102) | 122016-102 |
| C9-C11 | 470 pF, 100 V, NPO Ceramic-Disk Axial-Lead Capacitor (Acceptable substitute is part no. 122013-471) | 122016-471 |
| C12-C20 | 0.01 μ F, +80% -20%, 25 V Ceramic-Disk Axial-Lead Capacitor | 122005-103 |
| C21, C22 | 0.1 μ F, +80% -20%, 50 V Ceramic-Disk Capacitor | 122002-104 |
| C24-C30 | 0.1 μ F, +80% -20%, 50 V Ceramic-Disk Capacitor | 122002-104 |
| C31-C39 | 0.01 μ F, +80% -20%, 25 V Ceramic-Disk Axial-Lead Capacitor | 122005-103 |
| C40 | 0.1 μ F, +80% -20%, 50 V Ceramic-Disk Capacitor | 122002-104 |
| <i>Connector</i> | | |
| P20 | 44-Pin Card-Edge Connector (Acceptable substitute is part no. 179046-044) | 179073-044 |



3-26

Food Fight Game Printed-Circuit Board Assembly Parts List

| Designator | Description | Part No. |
|----------------------------|--|-------------|
| Capacitors | | |
| C1 | 0.1 μ F, +80%, 20%, 50 V, Ceramic Capacitor | 122002-104 |
| C2 | 39 pF, 100 V Minimum, Dipped, Fixed-Mica Capacitor | 128002-390 |
| C3 | 100 pF, 100 V Minimum, Dipped, Fixed-Mica Capacitor | 128002-101 |
| C4 | 0.1 μ F, +80%, -20%, 50 V, Ceramic Capacitor | 122002-104 |
| C5–C39 | 0.1 μ F, +80%, -20%, 50 V, Ceramic Capacitor | 122002-104 |
| C40–C47 | 0.1 μ F, +80%, -20%, 50 V, Ceramic Capacitor | 122002-104 |
| C48, C49 | 0.1 μ F, +80%, -20%, 50 V, Ceramic Capacitor | 122002-104 |
| C50 C52 | 0.1 μ F, +80%, -20%, 50 V, Ceramic Capacitor | 122002-104 |
| C53–C55 | 0.015 μ F, \pm 10%, 100 V, Radial-Lead Mylar Capacitor | 21-101153 |
| C56 | 0.001 μ F, \pm 10%, 100 V, Radial-Lead Mylar Capacitor | 21-101102 |
| C57 | 100 μ F, 35 V Aluminum Electrolytic Axial-Lead Capacitor | 24-350107 |
| C58, C59 | 0.1 μ F, +80% -20%, 50 V, Ceramic Capacitor | 122002-104 |
| C60 | 120 μ F, 100 V Mica Capacitor (Acceptable substitute is part no. 128002-151) | 128002-221 |
| C90 | 100 μ F, 35 V Aluminum Electrolytic Axial-Lead Capacitor | 24-350107 |
| Diodes | | |
| CR1 | Type-MV5053 Light-Emitting Diode | 38-MV5053 |
| CR2 | Type-1N756A, + 5%, 500 mW, 8.2 V Zener Diode | 32-1N756A |
| Inductors | | |
| L1 | 100 μ H, \pm 10% Inductor | 141002-001 |
| L2–L4 | 1 μ H, \pm 10%, 830 mA, 0.29 Ω , Peaking Coil Inductor | 141007-001 |
| Integrated Circuits | | |
| 1E | Type-74LS74 Integrated Circuit | 37-74LS74 |
| 1F | Type-74LS86 Integrated Circuit | 37-74LS86 |
| 1H | Type-7407 Integrated Circuit | 37-7407 |
| 1K | Type-74LS74 Integrated Circuit | 37-74LS74 |
| 1L | Type-74S04 Integrated Circuit | 37-74S04 |
| 1M | Type-74LS163A Integrated Circuit | 37-74LS163A |
| 1N | Type-74LS163A Integrated Circuit | 37-74LS163A |
| 1P | Type-74LS175 Integrated Circuit | 37-74LS175 |
| 2B | Type-74LS02 Integrated Circuit | 37-74LS02 |
| 2C | Type-74S08 Integrated Circuit | 37-74S08 |
| 2D | Type-74S157 Integrated Circuit | 37-74S157 |
| 2E | Type-74LS08 Integrated Circuit | 37-74LS08 |
| 2F | Type-74LS21 Integrated Circuit | 137210-001 |
| 2H | Type-74LS74 Integrated Circuit | 37-74LS74 |
| 2J | Type-74LS32 Integrated Circuit | 37-74LS32 |
| 2K | Type-74LS74 Integrated Circuit | 37-74LS74 |
| 2L | Type-74LS163A Integrated Circuit | 37-74LS163A |
| 2M | Type-74LS163A Integrated Circuit | 37-74LS163A |
| 2N | Type-74LS163A Integrated Circuit | 37-74LS163A |
| 2P | PROM Integrated Circuit | 136020-112 |

(Continued on next page)

Food Fight Game Printed-Circuit Board Assembly Parts List, continued

| Designator | Description | Part No. |
|------------|-----------------------------------|------------|
| 3A | Type-74LS157 Integrated Circuit | 37-74LS157 |
| 3B | Type-74LS157 Integrated Circuit | 37-74LS157 |
| 3C | Type-74LS174 Integrated Circuit | 37-74LS174 |
| 3D | Type-74LS299 Integrated Circuit | 137180-001 |
| 3E | Type-74LS299 Integrated Circuit | 137180-001 |
| 3F | Type-74LS283 Integrated Circuit | 137204-001 |
| 3H | Type-74LS21 Integrated Circuit | 137210-001 |
| 3J | Type-74LS245 Integrated Circuit | 37-74LS245 |
| 3P | Type-74LS157 Integrated Circuit | 37-74LS157 |
| 4A | Type-74S163 Integrated Circuit | 137274-001 |
| 4B | Type-74S163 Integrated Circuit | 137274-001 |
| 4C | Type-74LS86 Integrated Circuit | 37-74LS86 |
| 4F | Type-74LS273 Integrated Circuit | 37-74LS273 |
| 4H | Type-74LS283 Integrated Circuit | 137204-001 |
| 4J | Type-74LS86 Integrated Circuit | 37-74LS86 |
| 4K | Type-74LS367 Integrated Circuit | 37-74LS367 |
| 4L | Type-74LS157 Integrated Circuit | 37-74LS157 |
| 4M | Type-74LS157 Integrated Circuit | 37-74LS157 |
| 4N | Type-74LS157 Integrated Circuit | 37-74LS157 |
| 4P | Type-74S00 Integrated Circuit | 37-74S00 |
| 5A | Type-74S163 Integrated Circuit | 137274-001 |
| 5B | Type-74S163 Integrated Circuit | 137274-001 |
| 5H | Type-74LS377 Integrated Circuit | 37-74LS377 |
| 5J | Type-74LS245 Integrated Circuit | 37-74LS245 |
| 5K | Type-74LS273 Integrated Circuit | 37-74LS273 |
| 5L | Type-74LS273 Integrated Circuit | 37-74LS273 |
| 5M | Type-74LS194 Integrated Circuit | 37-74LS194 |
| 5N | Type-74LS194 Integrated Circuit | 37-74LS194 |
| 5P | Type-74LS32 Integrated Circuit | 37-74LS32 |
| 6B | Type-74LS273 Integrated Circuit | 37-74LS273 |
| 6H | Type-74LS157 Integrated Circuit | 37-74LS157 |
| 6J | Type-74LS157 Integrated Circuit | 37-74LS157 |
| 6K | Type-74LS273 Integrated Circuit | 37-74LS273 |
| 6N | Type-74LS257 Integrated Circuit | 37-74LS257 |
| 6P | Type-74LS257 Integrated Circuit | 37-74LS257 |
| 7K/L | Type-74LS273 Integrated Circuit | 37-74LS273 |
| 7M | Type-74LS273 Integrated Circuit | 37-74LS273 |
| 8K/L | Microprocessor Integrated Circuit | 137289-001 |
| 8M | Type-74LS244 Integrated Circuit | 37-74LS244 |
| 8N/P | Type-74LS244 Integrated Circuit | 37-74LS244 |
| 8H | Type-74LS245 Integrated Circuit | 37-74LS245 |
| 8H/J | Type-74LS245 Integrated Circuit | 37-74LS245 |
| 8P | Type-74LS02 Integrated Circuit | 37-74LS02 |
| 9H | Type-74LS245 Integrated Circuit | 37-74LS245 |

(Continued on next page)

Food Fight Game Printed-Circuit Board Assembly Parts List, continued

| Designator | Description | Part No. |
|---|--|------------|
| 9H/J | Type-74LS245 Integrated Circuit | 37-74LS245 |
| 9K/L | Microprocessor Integrated Circuit | 137289-004 |
| 9M | Type-74LS244 Integrated Circuit | 37-74LS244 |
| 9P | Type-74LS00 Integrated Circuit | 37-74LS00 |
| 10J/K | Type-74LS14 Integrated Circuit | 37-74LS14 |
| 10C | Type-7406 Integrated Circuit | 37-7406 |
| 10E | Type-74LS32 Integrated Circuit | 37-74LS32 |
| 10C/D | Type-74LS138 Integrated Circuit | 137177-001 |
| 10D | Type-74LS138 Integrated Circuit | 137177-001 |
| 10H/J | Type-74LS32 Integrated Circuit | 37-74LS32 |
| 10H | Type-74LS74 Integrated Circuit | 37-74LS74 |
| 10F | Type-74LS74 Integrated Circuit | 37-74LS74 |
| 10M | Type-74LS161 Integrated Circuit | 37-74LS161 |
| 10N | Type-74LS161 Integrated Circuit | 37-74LS161 |
| 10P | Programmed Logic Array Integrated Circuit | 137313-001 |
| 11C/D | Type-74LS273 Integrated Circuit | 37-74LS273 |
| 11D | Type-74LS244 Integrated Circuit | 37-74LS244 |
| 11E | Type-74LS244 Integrated Circuit | 37-74LS244 |
| 11/12J | Quad Op-Amp Integrated Circuit | 37-LM324 |
| 11K/L | Custom I/O Integrated Circuit | C012294-01 |
| 11L/M | Custom I/O Integrated Circuit | C012294-01 |
| 11N | Custom I/O Integrated Circuit | C012294-01 |
| 12D | D-to-A Converter Integrated Circuit | 137243-001 |
| Miscellaneous | | |
| Q2, Q3 | Nylon Snap-In Fastener | 81-4302 |
| | Test Point (Acceptable substitute is part no. 020670-01) | 179051-002 |
| Y1 | 12.096 MHz Crystal | 144000-001 |
| SW1 | 8-Station Single-Throw Dual-Inline Package Bit Switch | 66-118P1T |
| Erasable Programmable Read-Only Memories | | |
| 4E | Erasable Programmable Read-Only Memory | 136020-110 |
| 4D | Erasable Programmable Read-Only Memory | 136020-111 |
| 6L/M | Erasable Programmable Read-Only Memory | 136020-109 |
| 8C | Erasable Programmable Read-Only Memory | 136020-301 |
| 8D | Erasable Programmable Read-Only Memory | 136020-303 |
| 8E | Erasable Programmable Read-Only Memory | 136020-305 |
| 8F | Erasable Programmable Read-Only Memory | 136020-307 |
| 9C | Erasable Programmable Read-Only Memory | 136020-302 |
| 9D | Erasable Programmable Read-Only Memory | 136020-204 |
| 9E | Erasable Programmable Read-Only Memory | 136020-306 |
| 9F | Erasable Programmable Read-Only Memory | 136020-308 |
| Random-Access Memory | | |
| 3K | Static RAM Integrated Circuit | 90-7036 |
| 3L | Static RAM Integrated Circuit | 90-7036 |
| 3M | Static RAM Integrated Circuit | 90-7036 |
| 3N | Static RAM Integrated Circuit | 90-7036 |

(Continued on next page)

Food Fight Game Printed-Circuit Board Assembly Parts List, continued

| Designator | Description | Part No. |
|------------------|---|------------|
| 5C | Random-Access Memory | 137178-001 |
| 5D | Random-Access Memory | 137178-001 |
| 5E | Random-Access Memory | 137178-001 |
| 5F | Random-Access Memory | 137178-001 |
| 6C | Random-Access Memory | 137250-001 |
| 6D | Random-Access Memory | 137250-001 |
| 6E | Random-Access Memory | 137250-001 |
| 6F | Random-Access Memory | 137250-001 |
| 7N | Random-Access Memory | 137178-001 |
| 7P | Random-Access Memory | 137178-001 |
| 8A | Random-Access Memory | 137211-001 |
| 8B | Random-Access Memory | 137211-001 |
| 9A | Random-Access Memory | 137211-001 |
| 9B | Random-Access Memory | 137211-001 |
| 9N | Non-Volatile RAM Integrated Circuit | 137288-001 |
| Resistors | | |
| R1 | 220 Ω , $\pm 5\%$, $\frac{1}{4}$ W Resistor | 110000-221 |
| R2, R3 | 10 k Ω , $\pm 5\%$, $\frac{1}{4}$ W Resistor | 110000-103 |
| R4 | 1 k Ω , $\pm 5\%$, $\frac{1}{4}$ W Resistor | 110000-102 |
| R5-R7 | 1 k Ω , $\pm 5\%$, $\frac{1}{4}$ W Resistor | 110000-102 |
| R8 | 1 k Ω , $\pm 5\%$, $\frac{1}{4}$ W Resistor | 110000-102 |
| R9 | 1 k Ω , $\pm 5\%$, $\frac{1}{4}$ W Resistor | 110000-102 |
| R10 | 1 k Ω , $\pm 5\%$, $\frac{1}{4}$ W Resistor | 110000-102 |
| R11 | 470 Ω , $\pm 5\%$, $\frac{1}{4}$ W Resistor | 110000-471 |
| R12 | 1 k Ω , $\pm 5\%$, $\frac{1}{4}$ W Resistor | 110000-102 |
| R13, R14 | 220 Ω , $\pm 5\%$, $\frac{1}{4}$ W Resistor | 110000-221 |
| R15 | 470 Ω , $\pm 5\%$, $\frac{1}{4}$ W Resistor | 110000-471 |
| R16 | 1 k Ω , $\pm 5\%$, $\frac{1}{4}$ W Resistor | 110000-102 |
| R17 | 470 Ω , $\pm 5\%$, $\frac{1}{4}$ W Resistor | 110000-471 |
| R18 | 220 Ω , $\pm 5\%$, $\frac{1}{4}$ W Resistor | 110000-221 |
| R19 | 1 k Ω , $\pm 5\%$, $\frac{1}{4}$ W Resistor | 110000-102 |
| R20-R23 | 1 k Ω , $\pm 5\%$, $\frac{1}{4}$ W Resistor | 110000-102 |
| R24-R27 | 4.7 k Ω , $\pm 5\%$, $\frac{1}{4}$ W Resistor | 110000-472 |
| R28 | 220 Ω , $\pm 5\%$, $\frac{1}{4}$ W Resistor | 110000-221 |
| R29 | 220 Ω , $\pm 5\%$, $\frac{1}{4}$ W Resistor | 110000-221 |
| R30 | 1 k Ω , $\pm 5\%$, $\frac{1}{4}$ W Resistor | 110000-102 |
| R31 | 470 Ω , $\pm 5\%$, $\frac{1}{4}$ W Resistor | 110000-471 |
| R32 | 1 k Ω , $\pm 5\%$, $\frac{1}{4}$ W Resistor | 110000-102 |
| R33 | 470 Ω , $\pm 5\%$, $\frac{1}{4}$ W Resistor | 110000-471 |
| R34 | 1 k Ω , $\pm 5\%$, $\frac{1}{4}$ W Resistor | 110000-102 |
| R35 | 470 Ω , $\pm 5\%$, $\frac{1}{4}$ W Resistor | 110000-471 |
| R36 | 1 k Ω , $\pm 5\%$, $\frac{1}{4}$ W Resistor | 110000-102 |
| R37 | 470 Ω , $\pm 5\%$, $\frac{1}{4}$ W Resistor | 110000-471 |
| R38 | 1 k Ω , $\pm 5\%$, $\frac{1}{4}$ W Resistor | 110000-102 |

(Continued on next page)

Food Fight Game Printed-Circuit Board Assembly Parts List, continued

| Designator | Description | Part No. |
|----------------|---|------------|
| R39 | 470 Ω , $\pm 5\%$, $\frac{1}{4}$ W Resistor | 110000-471 |
| R40 | 1 k Ω , $\pm 5\%$, $\frac{1}{4}$ W Resistor | 110000-102 |
| R41 | 470 Ω , $\pm 5\%$, $\frac{1}{4}$ W Resistor | 110000-471 |
| R42 | 1 k Ω , $\pm 5\%$, $\frac{1}{4}$ W Resistor | 110000-102 |
| R43 | 470 Ω , $\pm 5\%$, $\frac{1}{4}$ W Resistor | 110000-471 |
| R44 | 1 k Ω , $\pm 5\%$, $\frac{1}{4}$ W Resistor | 110000-102 |
| R45 | 470 Ω , $\pm 5\%$, $\frac{1}{4}$ W Resistor | 110000-471 |
| R46 | 10 k Ω , $\pm 5\%$, $\frac{1}{4}$ W Resistor | 110000-103 |
| R47-R49 | 100 k Ω , $\pm 5\%$, $\frac{1}{4}$ W Resistor | 110000-104 |
| R50-R57 | 4.7 k Ω , $\pm 5\%$, $\frac{1}{4}$ W Resistor | 110000-472 |
| R58 | 10 k Ω , $\pm 5\%$, $\frac{1}{4}$ W Resistor | 110000-103 |
| R59-62 | 1 k Ω , $\pm 5\%$, $\frac{1}{4}$ W Resistor | 110000-102 |
| R63-R67 | 10 k Ω , $\pm 5\%$, $\frac{1}{4}$ W Resistor | 110000-103 |
| R68 | 22 k Ω , $\pm 5\%$, $\frac{1}{4}$ W Resistor | 110000-223 |
| R69-R71 | 330 k Ω , $\pm 5\%$, $\frac{1}{4}$ W Resistor | 110000-334 |
| R72-R74 | 910 Ω , $\pm 5\%$, $\frac{1}{4}$ W Resistor | 110000-911 |
| R75 | 220 Ω , $\pm 5\%$, $\frac{1}{4}$ W Resistor | 110000-221 |
| R76 | 1 k Ω , $\pm 5\%$, $\frac{1}{4}$ W Resistor | 110000-102 |
| R77 | 220 Ω , $\pm 5\%$, $\frac{1}{4}$ W Resistor | 110000-221 |
| R78 | 4.7 k Ω , $\pm 5\%$, $\frac{1}{4}$ W Resistor | 110000-472 |
| R79 | 330 Ω , $\pm 5\%$, $\frac{1}{4}$ W Resistor | 110000-331 |
| R90, R91 | 4.7 k Ω , $\pm 5\%$, $\frac{1}{4}$ W Resistor | 110000-472 |
| R207 | 1 k Ω , $\pm 5\%$, $\frac{1}{4}$ W Resistor | 110000-102 |
| Sockets | | |
| 4D | 28-Contact Medium-Insertion-Force Integrated Circuit Socket | 79-42C28 |
| 4E | 28-Contact Medium-Insertion-Force Integrated Circuit Socket | 79-42C28 |
| 5C | 22-Contact Medium-Insertion-Force Integrated Circuit Socket | 79-42C22 |
| 5D | 22-Contact Medium-Insertion-Force Integrated Circuit Socket | 79-42C22 |
| 5E | 22-Contact Medium-Insertion-Force Integrated Circuit Socket | 79-42C22 |
| 5F | 22-Contact Medium-Insertion-Force Integrated Circuit Socket | 79-42C22 |
| 6C | 22-Contact Medium-Insertion-Force Integrated Circuit Socket | 79-42C22 |
| 6D | 22-Contact Medium-Insertion-Force Integrated Circuit Socket | 79-42C22 |
| 6E | 22-Contact Medium-Insertion-Force Integrated Circuit Socket | 79-42C22 |
| 6F | 22-Contact Medium-Insertion-Force Integrated Circuit Socket | 79-42C22 |
| 6L/M | 28-Contact Medium-Insertion-Force Integrated Circuit Socket | 79-42C28 |
| 7N | 22-Contact Medium-Insertion-Force Integrated Circuit Socket | 79-42C22 |
| 7P | 22-Contact Medium-Insertion-Force Integrated Circuit Socket | 79-42C22 |
| 8A | 24-Contact Medium-Insertion-Force Integrated Circuit Socket | 79-42C24 |
| 8B | 24-Contact Medium-Insertion-Force Integrated Circuit Socket | 79-42C24 |
| 8C | 28-Contact Medium-Insertion-Force Integrated Circuit Socket | 79-42C28 |
| 8D | 28-Contact Medium-Insertion-Force Integrated Circuit Socket | 79-42C28 |
| 8E | 28-Contact Medium-Insertion-Force Integrated Circuit Socket | 79-42C28 |
| 8F | 28-Contact Medium-Insertion-Force Integrated Circuit Socket | 79-42C28 |
| 8K/L | 64-Contact Medium-Insertion-Force Integrated Circuit Socket | 79-42C64 |

(Continued on next page)

Food Fight Game Printed-Circuit Board Assembly Parts List, continued

| Designator | Description | Part No. |
|--------------------|---|-----------|
| 9A | 24-Contact Medium-Insertion-Force Integrated Circuit Socket | 79-42C24 |
| 9B | 24-Contact Medium-Insertion-Force Integrated Circuit Socket | 79-42C24 |
| 9C | 28-Contact Medium-Insertion-Force Integrated Circuit Socket | 79-42C28 |
| 9D | 28-Contact Medium-Insertion-Force Integrated Circuit Socket | 79-42C28 |
| 9E | 28-Contact Medium-Insertion-Force Integrated Circuit Socket | 79-42C28 |
| 9F | 28-Contact Medium-Insertion-Force Integrated Circuit Socket | 79-42C28 |
| 9K/L | 64-Contact Medium-Insertion-Force Integrated Circuit Socket | 79-42C64 |
| 10P | 20-Contact Medium-Insertion-Force Integrated Circuit Socket | 79-42C20 |
| 11K/L | 40-Contact Medium-Insertion-Force Integrated Circuit Socket | 79-42C40 |
| 11L/M | 40-Contact Medium-Insertion-Force Integrated Circuit Socket | 79-42C40 |
| 11N | 40-Contact Medium-Insertion-Force Integrated Circuit Socket | 79-42C40 |
| 12D | 28-Contact Medium-Insertion-Force Integrated Circuit Socket | 79-42C28 |
| Transistors | | |
| Q1 | Type-2N3904, 350 mW, 60 V NPN Transistor | 34-2N3904 |
| Q2, Q3 | Type-2N6044, 8 A, 80 V NPN Transistor | 34-2N6044 |
| Q4 | Type-2N3904, 350 mW, 60 V NPN Transistor | 34-2N3904 |

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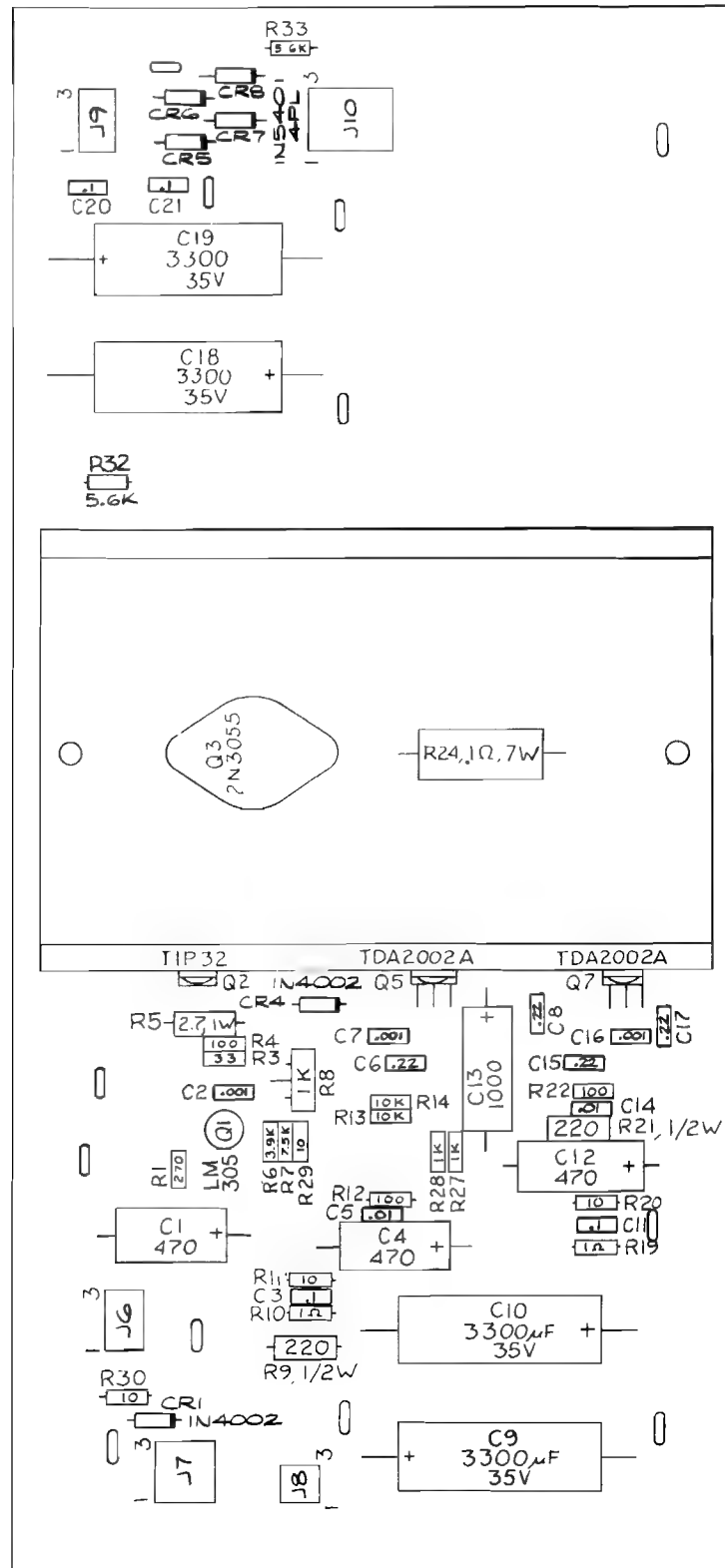


Figure 3-15 Regulator/Audio II PCB Assembly
A035435-04 K

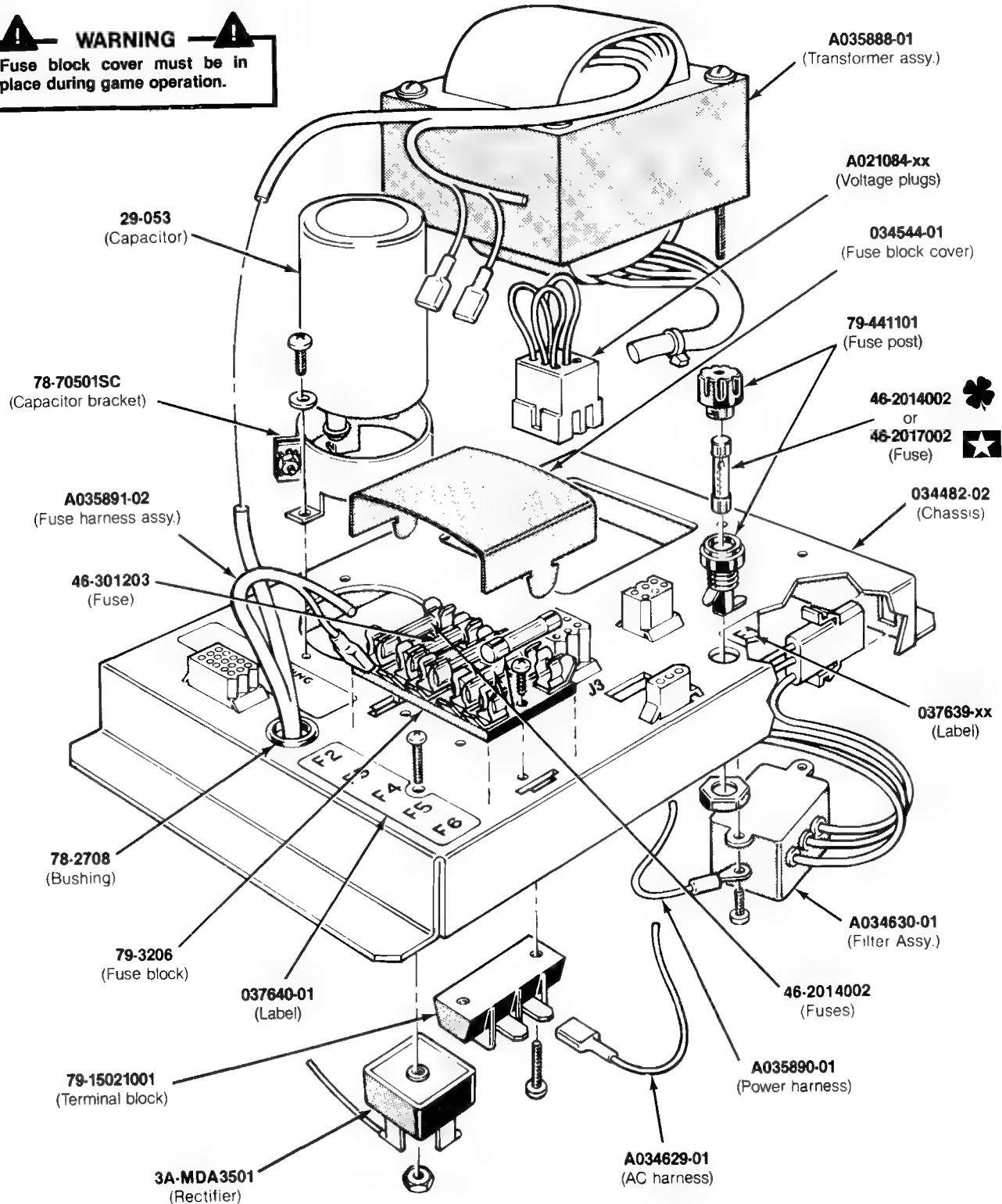
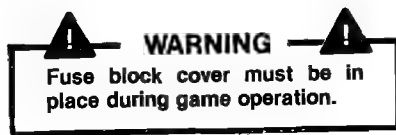
Regulator/Audio II PCB Assembly Parts List

| Designator | Description | Part No. |
|----------------------------|--|------------|
| <i>Capacitors</i> | | |
| C1 | 470 μ F, 25 V, Aluminum Electrolytic Fixed Axial-Lead Capacitor | 24-250477 |
| C2 | 0.001 μ F, 50 V, Ceramic-Disc Axial-Lead Capacitor | 122002-102 |
| C3 | 0.1 μ F, 50 V, Ceramic-Disc Axial-Lead Capacitor | 122002-104 |
| C4 | 470 μ F, 25 V, Aluminum Electrolytic Fixed Axial-Lead Capacitor | 24-250477 |
| C5 | 0.01 μ F, 25 V Minimum, Ceramic-Disc Axial-Lead Capacitor (Acceptable substitute is part no. 122005-103) | 100015-103 |
| C6 | 0.22 μ F, 25 V, Ceramic-Disc Axial-Lead Capacitor | 122004-224 |
| C7 | 0.001 μ F, 50 V, Ceramic-Disc Axial-Lead Capacitor | 122002-102 |
| C8 | 0.22 μ F, 25 V, Ceramic-Disc Axial-Lead Capacitor | 122004-224 |
| C9, C10 | 3300 μ F, 35 V, Aluminum Electrolytic Fixed Axial-Lead Capacitor | 24-350338 |
| C11 | 0.1 μ F, 50 V, Ceramic-Disc Axial-Lead Capacitor | 122002-104 |
| C12 | 470 μ F, 25 V, Aluminum Electrolytic Fixed Axial-Lead Capacitor | 24-250477 |
| C13 | 1000 μ F, 25 V, Aluminum Electrolytic Fixed Axial-Lead Capacitor | 24-250108 |
| C14 | 0.01 μ F, 25 V Minimum, Ceramic-Disc Axial-Lead Capacitor (Acceptable substitute is part no. 122005-103) | 100015-103 |
| C15 | 0.22 μ F, 25 V, Ceramic-Disc Axial-Lead Capacitor | 122004-224 |
| C16 | 0.001 μ F, 50 V, Ceramic-Disc Axial-Lead Capacitor | 122002-102 |
| C17 | 0.22 μ F, 25 V, Ceramic-Disc Axial-Lead Capacitor | 122004-224 |
| C18, C19 | 3300 μ F, 35 V, Aluminum Electrolytic Fixed Axial-Lead Capacitor | 24-350338 |
| C20, C21 | 0.1 μ F, 50 V, Ceramic-Disc Axial-Lead Capacitor | 122002-104 |
| <i>Diodes</i> | | |
| CR1, C4 | Type-1N4002, 1 A, 100 V Silicon Rectifier Diode | 31-1N4002 |
| CR5-CR8 | Type-1N5401, 3 A, 100 V Silicon Rectifier Diode | 31-1N5401 |
| <i>Integrated Circuits</i> | | |
| Q1 | Type-LM305, 5 V, Linear Voltage Regulator | 37-LM305 |
| Q5 | Type-TDA2002A, 8 W, Linear Audio Amplifier Integrated Circuit | 137151-002 |
| Q7 | Type-TDA2002A, 8 W, Linear Audio Amplifier Integrated Circuit | 137151-002 |
| <i>Resistors</i> | | |
| R1 | 270 Ω , $\pm 5\%$, $\frac{1}{4}$ W Resistor | 110000-271 |
| R3 | 33 Ω , $\pm 5\%$, $\frac{1}{4}$ W Resistor | 110000-330 |
| R4 | 100 Ω , $\pm 5\%$, $\frac{1}{4}$ W Resistor | 110000-101 |
| R5 | 2.7 Ω , $\pm 5\%$, 1 W Resistor | 110009-027 |
| R6 | 3.9 k Ω , $\pm 5\%$, $\frac{1}{4}$ W Resistor | 110000-392 |
| R7 | 7.5 k Ω , $\pm 5\%$, $\frac{1}{4}$ W Resistor | 110000-752 |
| R8 | 1 k Ω Horizontal PCB-Mounting Cermet Potentiometer (Acceptable substitute is part no. 19-315102) | 119002-102 |
| R9 | 220 Ω , $\pm 5\%$, $\frac{1}{2}$ W Resistor | 110001-221 |
| R10 | 1 Ω , $\pm 5\%$, $\frac{1}{4}$ W Resistor | 110000-010 |
| R11 | 10 Ω , $\pm 5\%$, $\frac{1}{4}$ W Resistor | 110000-100 |
| R12 | 100 Ω , $\pm 5\%$, $\frac{1}{4}$ W Resistor | 110000-101 |
| R13, R14 | 10 k Ω , $\pm 5\%$, $\frac{1}{4}$ W Resistor | 110000-103 |

(Continued on next page)

Regulator/Audio II PCB Assembly Parts List, continued

| Designator | Description | Part No. |
|-------------------------|---|-------------|
| R19 | 1 Ω , $\pm 5\%$, $\frac{1}{4}$ W Resistor | 110000-010 |
| R20 | 10 Ω , $\pm 5\%$, $\frac{1}{4}$ W Resistor | 110000-100 |
| R21 | 220 Ω , $\pm 5\%$, $\frac{1}{2}$ W Resistor | 110001-221 |
| R22 | 100 Ω , $\pm 5\%$, $\frac{1}{4}$ W Resistor | 110000-101 |
| R24 | 0.1 Ω , $\pm 3\%$, 7 W Wirewound Resistor | 19-100P1015 |
| R27, R28 | 1 k Ω , $\pm 5\%$, $\frac{1}{4}$ W Resistor | 110000-102 |
| R29, R30 | 10 Ω , $\pm 5\%$, $\frac{1}{4}$ W Resistor | 110000-100 |
| R32, R33 | 5.6 k Ω , $\pm 5\%$, $\frac{1}{4}$ W Resistor | 110000-562 |
| <i>Transistors</i> | | |
| Q2 | Type-TIP32 PNP Power Transistor | 33-TIP32 |
| Q3 | Type-2N3055 NPN Silicon Transistor | 34-2N3055 |
| <i>Mechanical Parts</i> | | |
| J6 | 6-Position Connector Receptacle | 79-58306 |
| J7 | 9-Position Connector Receptacle | 79-58308 |
| J8 | 4-Position Connector Receptacle | 79-58354 |
| J9 | 6-Position Connector Receptacle | 79-58306 |
| J10 | 12-Position Connector Receptacle | 79-58346 |
| Q2 | #6-32 x $\frac{1}{4}$ -Inch Binder-Head Nylon Screw | 75-F60405 |
| Q3 | #6-32 Nut/Washer Assembly | 75-99516 |
| Q3 | Thermally Conductive Silicon Insulator | 78-16008 |
| Q5 | Thermally Conductive Silicon Insulator | 78-16008 |
| Q5, Q7 | #6 x $\frac{3}{8}$ -Inch Cross-Recessed Pan-Head Thread-Forming Type-AB Zinc-Plated-Steel Screw | 72-6606S |
| | Heat Sink | 034531-01 |
| | Test Point (Acceptable substitute is part no. 020670-01) | 179051-001 |



**Figure 3-16 Color Raster-Scan Power Supply Assembly
A037671-01 & -03 H**

**Power Supply Assembly
Parts List
US-Built Game A037671-01 G**

| Designator | Description | Part No. |
|-------------------|---|-----------------|
| C1 | 27,000 μ F, 15 VDC Electrolytic Capacitor | 29-053 |
| C1 | 2-Inch Diameter Capacitor Mounting Bracket | 78-70501SC |
| CR1 | Type-MDA 3501 Bridge Rectifier | 3A-MDA3501 |
| F1 | Panel-Mounting Non-Indicating 3AG Cartridge-Type Fuse Post | 79-441101 |
| F1 | 7 A, 250 V, 3AG Slow-Blow Glass Cartridge-Type Fuse | 46-2017002 |
| F1 | Label for Fuse Value | 037639-01 |
| F2 | 4 A, 250 V, 3AG Slow-Blow Glass Cartridge-Type Fuse | 46-2014002 |
| F2-F6 | 5-Position 3AG Fuse Block with 1/4-Inch Quick-Disconnect Terminals | 79-3206 |
| F2-F6 | Fuse Harness Assembly | A035891-02 |
| F2-F6 | Fuse Block Cover | 034544-01 |
| F2-F6 | Label for Fuse Values | 037640-01 |
| F3 | 20 A, 32 V, 3AG Slow-Blow Glass Cartridge-Type Fuse | 46-301203 |
| F4 | 2-Circuit Single-Row Terminal Block (located under F4) | 79-15021001 |
| F4-F6 | 4 A, 250 V, 3AG Slow-Blow Glass Cartridge-Type Fuse | 46-2014002 |
| FL1 | RFI Filter Assembly (designation not marked) | A034630-01 |
| J2 | Power Harness Assembly | A035890-01 |
| J3 | Voltage Plug for 120 V (105-135 VAC) (yellow wire color—plugs into J3) | A021084-02 |
| J4A | AC Harness Assembly | A034629-01 |
| T1 | Transformer Assembly (designation covered—Acceptable substitute is part no. A035888-02) | A035888-01 |
| | Nylon Type 6/6 Hole Bushing with 5/8-Inch Inside Diameter x 5/64-Inch Outside Diameter x 1/4-Inch Thick | 78-2708 |
| | Power Supply Chassis Base | 034482-02 |
| | Metal Base Plate (not shown in illustration) | 037243-01 |

**Power Supply Assembly
Parts List
Ireland-Built Game A037671-03 G**

| Designator | Description | Part No. |
|-------------------|---|-----------------|
| C1 | 27,000 μ F, 15 VDC Electrolytic Capacitor | 29-053 |
| C1 | 2-Inch Diameter Capacitor Mounting Bracket | 78-70501SC |
| CR1 | Type-MDA 3501 Bridge Rectifier | 3A-MDA3501 |
| F1 | Panel-Mounting Non-Indicating 3AG Cartridge-Type Fuse Post | 79-441101 |
| F1 | Label for Fuse Value | 037639-02 |
| F1, F2 | 4 A, 250 V, 3AG Slow-Blow Glass Cartridge-Type Fuse | 46-2014002 |
| F2-F6 | 5-Position 3AG Fuse Block with 1/4-Inch Quick-Disconnect Terminals | 79-3206 |
| F2-F6 | Fuse Harness Assembly | A035891-02 |
| F2-F6 | Fuse Block Cover | 034544-01 |
| F2-F6 | Label for Fuse Values | 037640-01 |
| F3 | 20 A, 32 V, 3AG Slow-Blow Glass Cartridge-Type Fuse | 46-301203 |
| F4 | 2-Circuit Single-Row Terminal Block (located under F4) | 79-15021001 |
| F4-F6 | 4 A, 250 V, 3AG Slow-Blow Glass Cartridge-Type Fuse | 46-2014002 |
| FL1 | RFI Filter Assembly (designation not marked) | A034630-01 |
| J2 | Power Harness Assembly | A035890-01 |
| J3 | Voltage Plug for 220 V (200-240 VAC) (blue wire color—plugs into J3) | A021084-04 |
| J3 | Voltage Plug for 240 V (220-260 VAC) (brown wire color—plugs into J3) | A021084-05 |
| J4A | AC Harness Assembly | A034629-01 |
| T1 | Transformer Assembly (designation covered—Acceptable substitute is part no. A035888-02) | A035888-01 |
| | Nylon Type 6/6 Hole Bushing with 5/8-Inch Inside Diameter x 5/64-Inch Outside Diameter x 1/4-Inch Thick | 78-2708 |
| | Power Supply Chassis Base | 034482-02 |
| | Metal Base Plate (not shown) | 037243-01 |

Appendix A

Gimbal Joystick Maintenance and Repair

WARNING
Before removing or repairing the joystick, turn the game off.

Normal maintenance involves lubricating four parts in the joystick control approximately every three months (this requires removing the control). First, open the control panel. Tilt the control panel towards you. Then unsolder the harness from the two potentiometers on the joystick assembly.

From the inside of the control panel, remove the four flat washers, hex nuts, and carriage bolts that mount the joystick to the control panel.

Then open up the joystick control assembly by removing the four flat washers, hex nuts, and long screws (see Figure 3-4). At this point, most of the parts should disassemble.

For lubrication, use only Nyogel 779 lubricant (Atari part no. 178027-001). Lubricate the following parts inside the control:

- The insides of the two black linkages, located on the potentiometer shafts.
- The insides of the two gimbals, where the bottom of the shaft wears against them.
- The sides of the pivot ball housings at the four holes where the gimbals are attached.

If the bellows need replacing, remove both gimbals and the bellows cap. Slide the bellows off the bottom of the shaft. Slide the new bellows up over shaft.

Reassemble the joystick control, and then reinstall it in the control panel. Reconnect the harness wires as shown in Figure 3-3. **Make sure the right colors go to the tabs on the potentiometers.** Refer to Chapter 2, Self-Test Menu, for instructions on how to recalibrate the joystick.

If the square pattern control plate (part no. 036953-01) or mounting plate (part no. 036954-01) need replacing, disassemble the lower half of the control by removing the four hex nuts. Support the pivot ball of the pivot shaft assembly on a hard surface that has a hole slightly deeper than the length of the roll pin (see Figure A-1). Knock out the $\frac{3}{16}$ -inch roll pin using a $\frac{3}{16}$ -inch punch. Reassemble in reverse order.

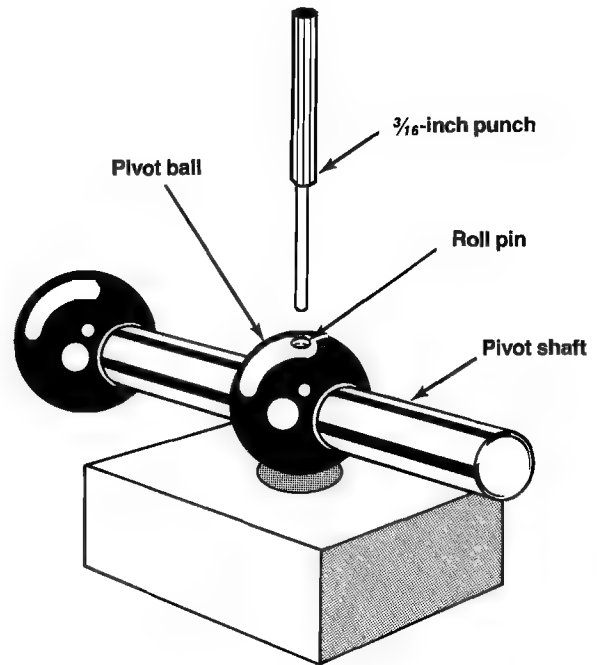


Figure A-1 Disassembling the Pivot Shaft Assembly

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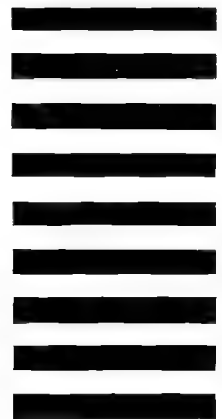
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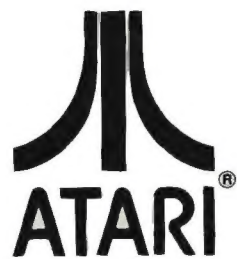
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